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ABSTRACT

This report describes a project to develop a tool to assist local schools and districts in choosing among various educational approaches to serving children and youth with disabilities in general education settings. The primary purpose of the study, its objectives, and the final product are described in the first chapter. The second chapter contains a description of the process and procedures used to develop the Decision Tool and presents the decision-making framework. Appendices contain a listing of Advisory and Review Panel members and descriptions of the focus group process, the site visit process, and procedures used to gather implementation information. The final product of the study, "Educational Approaches and Program Options for Integrating Students with Disabilities: A Decision Tool," a manual for principals, district directors of special and general education programs, and teachers, is included as Appendix A. This guide offers a decision-making framework that provides a means for classifying individual programs and recording general implementation information about each program. The first level of program classification is by the primary approach to intervention. The second level of classification is according to the focus of the intervention approach. Programs following an instructional approach can be classified at one additional level (Level 3) according to the type of curriculum addressed. Descriptive information about programs of interest can be broken down into relevant program characteristics such as target population, focus of intervention, implementation requirements, and program effectiveness and costs. A planning process is presented for use in program review, selection, and implementation. Sixteen programs are then described using the key dimensions presented in the decision-making framework to demonstrate how program information can be extracted and synthesized so that informed decisions can be made. (Each program description contains a list of references. (DB)

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Final Report

ESTABLISHING A CENTER FOR EDUCATING STUDENTS WITH HANDICAPS IN REGULAR EDUCATION SETTINGS (CESHIRES)

by

Joni Y. Alberg, Project Director

Prepared for

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Joni Alberg
Project Director

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CHAPTER 1

INTRODUCTION

The Research Triangle Institute (RTI), in collaboration with research associates from the University of North Carolina at Chapel Hill and the University of Miami, conducted a study to develop a tool to assist local schools and districts in choosing among various educational approaches to serving children and youth with disabilities in general education settings. This report presents the findings and final product of this research, which was funded by the Division of Innovation and Development, Office of Special Education Programs, U.S. Department of Education.

The study's background, objectives, and final product are discussed in this first chapter. Also presented in this chapter is the organization for the remainder of this report.

BACKGROUND

Since the passage of the Education for All Handicapped Children Act of 1975 (Public Law 94-142), increasing emphasis has been placed on providing appropriate educational opportunities for students with disabilities within general education settings. Indeed, according to a recent national report, over two-thirds of all students with disabilities receive the majority of their education in general rather than special education programs (U.S. Department of Education, 1990). One of the primary challenges for educators regarding implementation of P.L. 94-142 is determining when integrated educational opportunities can occur and maximizing those opportunities for students with disabilities. This challenge is enhanced by the need to develop specific general education programs that address the growing cultural and racial diversity of the total student population. The abilities, cultures, interests, and needs of general education students in schools and classrooms across the country are becoming increasingly diversified. The inclusion of students with disabilities in these schools and classrooms further extends this diversity.

Numerous programs are available for use with diverse populations of students in a variety of instructional and administrative situations. These programs, developed for both general and special education, provide many options from which schools may choose. With the quantity of information available, it can be difficult for school personnel to choose the type of program that will work best for their students within their particular school setting. There is clearly a need to assist educators who are in the process of addressing this challenge by providing information and guidance.

It is important to understand that no single strategy or approach can be used by all schools to establish integrated educational opportunities for students with diverse abilities. It follows then, that information about available programs and an awareness of the district's and/or school's specific needs will be required when choosing from among the variety of approaches. However, a framework to help teachers and administrators easily and efficiently reflect upon the range of available choices and make sound decisions about the viability of certain programs in their school or district has not been available. Teachers and administrators need to know the premises upon which the various approaches are based, the predicted outcomes of using a particular program, and the potential impact that implementing it will have on students, staff, and the community. Additionally, school administrators need to know what kinds of resources, both human and fiscal, are necessary for implementing a given program, the length of time it will take to get the program "up and running" in the school or district, and the success other implementors have had with program implementation.

PURPOSE AND OBJECTIVES

The primary purpose of this study was to provide a decision-making framework and supporting documentation to assist local schools and districts in choosing among various educational approaches to serving children and youth with diverse abilities, especially those with disabilities, in general education settings. The specific objectives of the study were:

- To identify and document approaches to serving children and youth with disabilities in general education settings;
- To select and describe representative programs for each approach;
- To develop a framework for assisting school and district-level decision makers in making informed choices among alternative approaches and programs;

- To disseminate information about approaches and programs to potential users.

To achieve these objectives, the study team completed a number of activities, including: developed a classification schema; selected programs to demonstrate and test the classification schema; interviewed program developers and school and district practitioners about program selection and implementation; visited sites using programs we selected to demonstrate the classification schema; developed and tested a decision-making framework for classifying and describing programs; conducted focus groups to guide and direct the development of the framework and to evaluate its usefulness; and produced for distribution a manual containing the decision-making framework and supporting documentation.

PRODUCT OF THE STUDY

The chief result of this study is a tool designed to assist educational decision makers in choosing an approach or program that will help them achieve their goals for serving students with disabilities in general education settings. This product, entitled Educational Approaches and Program Options for Integrating Students with Disabilities: A Decision Tool, is a manual designed primarily for use by principals, district directors of special and general education programs, and teachers. It is organized to lead users through the process of considering, selecting, and planning for the implementation of a program(s) that holds promise for facilitating the integration of students with disabilities in general education settings.

Included in the product is a decision-making framework that provides a means for classifying individual programs at two or three levels and recording general implementation information about each program. The first level at which programs can be classified using the framework is their primary approach to intervention. For example, this framework requires the user first to determine if educational programs follow an instructional or administrative approach to intervention. Once the primary approach has been determined, programs can be further classified according to the focus of their intervention approach (Level 2). Instructional programs can be classified as having a curriculum or instructional delivery focus. Administrative programs can be classified as having a classroom restructuring or school/district restructuring focus. Finally, programs following an instructional approach can be classified at one additional level (Level 3) according to the type of curriculum addressed--academic skills or strategy and process skills--or the type of instructional delivery they address--teacher-directed instruction or student-guided instruction.

In addition to providing a means for classifying programs according to their approach to intervention, our framework provides a means for recording general information about a program, or about multiple programs. For each program of interest, descriptive information can be recorded in order to assist the user in determining whether or not a program (or programs) appears promising for meeting school or district goals for integrating students with disabilities. The framework provides a means for recording such relevant program characteristics as (1) the target population; (2) focus of intervention, including location, intended student and system outcomes, and instructional content; (3) implementation requirements; and (4) evidence of effectiveness. Using the framework, school or district administrators can identify specific programs or approaches that appear to meet a school or district's needs and for which additional information is required.

The framework and its use are discussed in detail in the product that is included in this report as Appendix A and also is available in a "stand alone" format. Sixteen programs are presented to illustrate the range of programs represented by the framework. Each program was selected as a good example for each approach, but should not be considered as the only program worthy of consideration within each approach designation. There are many available promising programs. The framework provides a means for examining and considering numerous programs.

The 16 programs are described in the product. These descriptions are based on information obtained from a review of program documentation, an interview with the program's developer(s), and visits to schools and districts using the program. Each program description is organized to provide an in-depth understanding of the program's implementation requirements. A consistent format is used for the program descriptions. In addition to providing in-depth information about the 16 programs, the format used in these descriptions can serve as a model to other program developers for describing their programs.

Development of the Decision Tool was guided by the project's Advisory and Review Panel. The Panel assisted in the development of the decision-making framework, reviewed draft products, and recommended potential programs for illustrating the decision-making framework. A list of Panel members is included as Appendix B.

In addition to the direction and guidance provided by the Advisory and Review Panel, development of the Decision Tool was influenced by participants in nine focus groups that were conducted in locations across the country. These groups reviewed and discussed drafts of study materials and components of the final product. The primary purpose of the focus groups was to obtain direction and guidance from representatives of our targeted user groups in a variety of geographic locations and school settings that would assist us in transforming the information we gathered throughout the course of this project into a usable format. Additionally, order and depth of information included in the program descriptions were guided by the focus groups. Focus group participants included general education teachers, special education teachers, principals, assistant principals, district coordinators, supervisors, directors of special education, assistant superintendents, and directors of general education programs. Appendix C contains a description of the focus group process.

ORGANIZATION OF THE REMAINDER OF THIS REPORT

Chapter 2 contains a description of the process and procedures used to develop the Decision Tool and presents the decision-making framework. In Chapter 3 we present our findings and recommendations for future research. Our product, Educational Approaches and Program Options for Integrating Students with Disabilities: A Decision Tool, is included as Appendix A. Appendix B contains a listing of Advisory and Review Panel members. The focus group process is described in Appendix C and the site visit process and procedures used to gather implementation information for 16 programs are presented in Appendix D.

CHAPTER 2

STUDY PROCESS AND PROCEDURES

This chapter presents the process and procedures we followed to develop the decision-making framework included in Educational Approaches and Program Options for Integrating Students With Disabilities: A Decision Tool. The framework provides a means for classifying individual programs at two or three levels and recording general implementation information about each program. The classification schema for organizing educational program approaches is discussed in Section I. In Section II we discuss the schema for summarizing descriptive and implementation information about educational programs. Combined, the program classification and program description schemas form the decision-making framework. The framework and its use are described in Section III.

CLASSIFICATION OF PROGRAM APPROACHES

Development and Description of the Classification Schema

One of the most challenging tasks encountered was the development of a schema that permitted the classification of educational programs according to distinctive differences in their approach to educational intervention. "Educational intervention", in the context of this project, refers to any strategy, process, or procedure applied in an educational setting (classroom, school, or district) for the purpose of altering the status quo. We began this project by using a single-level classification schema. According to this schema, programs could be classified according to one of the following approaches to intervention: teacher collaboration, peer [student] collaboration, classroom organization, curriculum design and instructional modification, and school restructuring. Our initial efforts focused on (1) conducting an extensive review of the literature to document the basic assumptions and theoretical/empirical rationale that formed the foundation for each approach and (2) identifying programs that followed each approach.

The identification of programs following each approach served several purposes. First, we were able to determine if the approach designations worked as a means for distinguishing among programs and thus facilitating the process of review. Second, the classification of programs by approach forced us to examine closely the conceptual and theoretical foundations of each program, thus increasing our understanding of each program and the defining approaches. Third, we identified numerous programs that met our criteria for consideration as examples of each approach--confirming our belief that numerous program options are available to assist schools and districts in meeting their goals for integrating students with disabilities.

The identification of programs to support our single-level approach classification schema was successful; however, we came to realize that our original classification schema, while somewhat useful for grouping programs of a similar nature, did not provide sufficient information to distinguish among programs that are potentially useful for integrating students with disabilities. Thus, while we were able to classify programs according to the five approaches, the designations did not provide sufficient information about a program to facilitate a decision about its use. For example, classifying a program as following a teacher collaboration approach conveys that the program will involve teachers working together. It does not indicate whether teachers will work together in instructional or other settings, nor does it reflect the focus of the collaboration. It became apparent that we needed to develop a classification schema that provided more specific implementation information about programs so that users could more fully understand the specific emphasis of a program and decide if the program is compatible with their instructional and/or administrative needs.

The classification schema that evolved permits educational programs to be classified at several levels--first according to broad commonalities in their approach to intervention and then, more specifically, according to the focus and type of intervention. For example, at Level 1 programs are classified as following an instructional or administrative approach. At the next level (Level 2), instructional programs are classified as focusing on curriculum or instructional delivery while administrative programs are classified as focusing on classroom restructuring or school/district restructuring. Finally, programs following an instructional approach can be further classified according to the type (Level 3) of curriculum or instructional delivery each program emphasizes: academic or strategy and process curriculum and teacher-directed or student-guided instructional delivery. This multilevel schema, presented in Figure 1, permits program classification according to distinctive aspects of the intervention approach. Each of these levels is further described below.

Level 1: Program Approach

Using the schema, the initial step in classifying programs is to determine the primary approach to intervention that each program follows. For purposes of this framework the term "approach" refers to the method used to facilitate the integration of students with disabilities into general education settings. According to our framework, programs will take an instructional approach or an administrative approach.

Instructional approach. Programs following an instructional approach address the content (i.e., curricula) and process of instruction (i.e., the methods and procedures required to deliver content). Instructional programs may be implemented in a single classroom, several classrooms, or an entire school or district.

Administrative approach. Programs that follow an administrative approach address the structures and strategies used to provide educational programs. Administrative programs may address educational program implementation in classrooms, schools, or districts.

Level 2: Program Focus

Once programs have been classified according to their primary approach to intervention, they can be further classified according to specific focus within each approach. Used here, "focus" refers to the central interest or activity of the instructional or administrative intervention. According to our framework, instructional programs can be further classified as having a curriculum or instructional delivery focus, while administrative programs can be further classified as having a classroom restructuring or school/district restructuring focus.

FIGURE 1

CLASSIFICATION SCHEMA FOR PROGRAM APPROACHES

Instructional Approach				Administrative Approach	
Curriculum		Instructional Delivery		Classroom Restructuring	School/District Restructuring
Academic	Strategy/Process	Teacher Directed	Student Guided		

Curriculum focus. Curriculum programs are designed to teach specific content. The content may focus on academic subjects, developmental skills, learning strategy and process (including thinking) skills, and social skills. Curriculum programs require that time be allotted for teaching the content to students.

Instructional delivery focus. Instructional delivery programs are designed to provide methods and strategies for teaching content to students; i.e., the focus of these delivery programs is on the process of instruction.

Classroom restructuring focus. Programs that focus on classroom restructuring emphasize the alteration of classroom processes and procedures to accommodate the needs of diverse student populations. Classroom restructuring programs may emphasize changing operational or procedural aspects of the classroom, such as individualizing instruction for *all* students or providing specialized instruction within the general education class setting.

School/district restructuring focus. Programs that focus on school/district restructuring emphasize the alteration of school or district structures to accommodate the needs of diverse student populations. School/district restructuring programs may emphasize placement of programmatic and administrative decision making at the school building level; non-graded classes; school-within-a-school; or neighborhood schools.

Level 3: Program Type

The final classification level included in our framework applies only to programs classified as following an instructional approach. The need for a third level of classification for instructional programs is due to the large number of available programs that can be classified as following an instructional approach. The addition of this third level provides a means for further classifying programs within each instructional focus area by program type, i.e., according to specific program commonalities or traits. According to the framework, instructional programs having a curriculum focus will be of two types: those that emphasize instruction in academic skills and those that emphasize instruction in strategies and processes that improve the learning of academic content. Instructional programs having an instructional delivery focus will emphasize instructional processes and procedures that are either teacher-directed or student-guided.

Instructional programs having a curriculum focus. Academic skills programs are used to teach students curriculum content, including the primary content areas of reading, language, mathematics, science, and social studies. Additionally, academic skills programs may focus on developmental skills.

Strategy and process programs are used to teach students procedures for gaining access to and processing information. Programs for teaching strategies and processes for learning and thinking provide a curriculum that must be first taught in isolation (i.e., in addition to the existing academic curriculum) and then applied in a variety of learning situations.

Instructional programs having an instructional delivery focus. Teacher-directed programs emphasize methods of instruction that can be applied to a variety of curricula. In this type of program the teacher is the primary facilitator of the instructional process.

Student-guided programs emphasize the involvement of students as facilitators of instruction. Although teachers must organize and manage the process of student-guided instruction, students assume primary responsibility for their own and their classmates' learning.

Use of the Schema for Classifying Program Approaches

Once the classification schema was developed, the next challenge was to demonstrate its use as a classification tool. We selected 16 programs to (1) represent the range of program options represented by the schema, (2) demonstrate the range of program options available to persons interested in expanding integration opportunities for students with disabilities, and (3) represent interventions that can be used in a variety of settings with a variety of students. Figure 2 presents the results of our classification using the approach schema. Nine programs were classified as following an instructional approach--three with a curriculum focus and six with an instructional delivery focus. Seven programs were classified as following an administrative approach--four with a focus on classroom restructuring and three with a focus on school/district restructuring. A discussion of the program selection process for these programs is provided in the following sections.

FIGURE 2

CLASSIFICATION OF PROGRAMS BY INTERVENTION APPROACH, FOCUS, AND TYPE

Instructional Approach				Administrative Approach	
Curriculum		Instructional Delivery			
Academic	Strategy/ Process	Teacher-Directed	Student-Guided	Classroom Restructuring	School/District Restructuring
• High/Scope Curriculum	• Strategies Intervention Model • Tactics for Thinking	• Direct Instruction • Mastery Learning • Learning Styles • SUCCESS	• Student Team Learning • Classwide Student Tutoring Teams	• Adaptive Learning Environments Model • Vermont Consulting Teacher Model • Teacher Assistance Teams • Project RIDE	• North Carolina Lead Teacher Model • Comprehensive Local School • Coalition of Essential Schools

Program selection. Information from a variety of sources, including literature searches, recommendations of experts, and contacts with school district personnel, guided us throughout the course of the project in identifying a large number of programs as candidates for study. The focus of our efforts was on identifying programs that were (1) good examples of programs that can facilitate integration, (2) representative of the array of available programs, and (3) illustrative of the approaches we articulated through our early study activities. We considered both general and special education programs and attempted to locate a sample of programs that, while not designed explicitly for the integration of students with disabilities, support it.

Our efforts revealed an array of programs. Reviews of the programs we identified were guided by the following criteria:

- Prevalence

  The program was currently in use in at least two sites, preferably two sites in addition to the developer's location, and

  The program had been in operation for at least two years.

- Replicability/Transportability

  The pedagogical, administrative, organizational, and instructional features of the program were clearly specified/documented, and

  Supporting resources were available to assist sites in the adoption of the program.

- Feasibility of Implementation

  Characteristics that would influence the adoption of the program were described (e.g., costs, potential barriers, special training, space requirements).

- Demonstrated Effectiveness

  The program had been evaluated and beneficial effects had been demonstrated.

- Representativeness

  The program incorporated key features (premises, rationale, and characteristics) of one or more of our approaches, and

The program was robust (i.e., it was applicable for more than one grade level, students with a variety of disabilities and degrees of severity, curriculum, and context/location).

- Conceptual Framework

  The program was based on a conceptual framework founded in theory or research.

We used the listed criteria to select programs and also chose programs that represented a variety of approaches. Further, the programs had to address the issues inherent in integration and demonstrate the ability or potential for meeting the needs of students with disabilities in general education classrooms. In some cases we identified several programs having similar features. For instance, there are multiple instructional programs focused on "cooperative learning," "learning styles," and "teacher collaboration." Generally, only one program of each type was selected, so as to provide a broader array of program types.

PROGRAM DESCRIPTION SCHEMA

The second step in developing a decision-making framework for reviewing educational programs that facilitate the integration of students with disabilities was to identify the critical information that users of the framework needed to know about a program in order to make a decision about considering it further. Thus, our task was to develop a schema for reporting critical program information within the decision-making framework.

Development of Program Descriptors

The program descriptors we selected and included in the framework reflect the input we received from focus group participants and site visit interviewees about the types of information they want and need to know when making initial decisions about whether or not to consider a program for implementation. The kinds of information desired and needed can be grouped into four general areas: characteristics of the target population for the program; focus of the program's intervention; implementation requirements; and evidence of effectiveness. Figure 3 presents the descriptors we developed to address each area of interest. The descriptors, which are included in the decision-making framework, guide the user in recording information about programs of interest. The kinds of information a user would record for each area is discussed below.

FIGURE 3

PROGRAM DESCRIPTORS

PROGRAM CHARACTERISTICS

TARGET POPULATION

- Grade Level
- Types of Students

FOCUS OF INTERVENTION

- Location
- Intended Student Outcomes
- Intended System Outcomes
- Instructional Content

IMPLEMENTATION REQUIREMENTS

- Teacher Manual/Guide
- Instructional Materials
- Curriculum
- Staffing
- Training
- Facilities

EVIDENCE OF EFFECTIVENESS

- Evaluation component
- Direct measurement of program effectiveness
- Direct examination of program methods/components

Target population. Two kinds of information may be recorded about the target population for whom a program was developed. The grade level(s) and types of students for whom the program is appropriate are identified. Grade level groupings include Pre K, K-3, 4-6, 7-9, 10-12, and Post 12. Student types include students with learning disabilities, mental handicaps, behavioral/emotional handicaps, gifts, and other classifications (e.g., Chapter 1, Limited English Proficient), as well as students in general education programs.

Focus of intervention. The focus of intervention addresses the location for implementation, intended student and system outcomes, and the instructional content of the program. The location of implementation may be the classroom, the school, or the district. Intended student outcomes are academic competence, behavioral competence, and social competence, while intended system outcomes are restructuring, shared decision making, teacher skill development, and reorganization.

Implementation requirements. Information about implementation requirements can be recorded by indicating if a program component is provided or required. The following components are addressed: teacher manual or guide; instructional materials, and whether they are consumable or nonconsumable; curriculum, and whether the curriculum is considered as a replacement or addition or can be integrated with existing curricula; staffing (i.e., requirements for specific staff assignments or need for additional staff); training, and whether users can self-train or have access to external trainers; and facilities--whether additional facilities are necessary or if existing facilities need to be modified.

Evidence of effectiveness. Two kinds of information are recorded under this area. First, the inclusion of an evaluation component can be noted. Second, the kinds of program evaluation--direct evaluation of program effectiveness or evaluation of program methods or components--that have been conducted can be recorded.

Using the Schema to Develop In-Depth Program Descriptions

The decision-making framework provides a tool for making initial decisions about the promise of a program for meeting a user's goals and for determining if a program should be considered further. Programs identified as promising must be further studied to determine if they will meet desired goals and identified needs.

The 16 programs selected to demonstrate the array of available program options were studied in depth to (1) increase the study team's understanding about programs that have potential for integrating students with disabilities; (2) demonstrate how in-depth information about a program under consideration can be synthesized to facilitate its review; (3) demonstrate, for program developers, how to organize program information according to the needs and desires of potential users; and (4) provide in-depth information about 16 programs determined by the study team to be promising for integrating students with disabilities into general education settings. Development of in-depth descriptions for each of the 16 programs involved a three-step process.

First, we conducted a review of the literature that described and documented each selected program. We examined books, journal articles, unpublished reports, manuals, and training materials. Using the information obtained from these sources, we developed a draft summary of the program.

Next, we met with each program's developer and a selected school district implementor to gather additional data about each program. From these meetings we confirmed the written information in our draft summary and gathered more extensive information about each program's development and implementation. Specifically, developers were asked to bring to, or be prepared to discuss at, the meeting any information about their program that is not available form other sources, such as the impetus leading to the development of the program, evolutions of the program since its original development, and reasons for changes in the program.

Finally, we visited sites recommended by program developers as schools and/or districts that would provide us with good information about program implementation. The visits were intended to : (1) extend our understanding about program implementation obtained from the literature reviews and developer interviews; (2) provide insight into each program's potential for transportability and replication; and (3) provide insight into the impetus for, and process of, program selection by a school or district. This latter purpose provided us with information about the decision-making process that is followed in selecting a program for implementation.

A site visit protocol provided structure and consistency to the collection of data across sites. The protocol contained a series of questions organized by topical area (e.g., the role of the teacher) whose answers would provide information about program selection and implementation. Additionally, the protocol contained directions to the site visitor regarding observations to be made and documentation to gather. Prior to making site visits, site visitors attended a one-day training session that provided an orientation to the visits and information about the site visit process and the substantive issues being studied. A description of the site selection and scheduling process is included in Appendix D along with copies of the site visit protocols used in Years One and Two.

THE DECISION-MAKING FRAMEWORK

Development of the Decision-Making Matrix

Once the approach classification and program descriptor schemas were developed, we were ready to incorporate them into a tool that could be used to review educational programs and determine their potential for meeting school and district goals. The tool we developed and titled the Decision-Making Matrix is presented in Figure 4. The Matrix permits a program to be described along two dimensions--its approach to intervention (using the approach classification schema across the top of the Matrix), and its characteristics as a program (using the program descriptor schema along the left side of the Matrix). For example, a user of the Matrix would first determine the approach to intervention followed by a program of interest. Next, the focus and, in the case of programs following an instructional approach, type of program must be determined. The title of the program could then be entered in the Matrix in the first row of the column under its designated approach, focus, and type. The user would then be ready to record information about the program's characteristics. For each item included under "Program Characteristics" on the left side of the Matrix, the user would record relevant information in the box where the row for the descriptor of interest meets the column of the program under review.

Figure 4. DECISION-MAKING MATRIX

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →)																								
PROGRAM CHARACTERISTICS																								
TARGET POPULATION:																								
Grade Levels:																								
pre K																								
K-3																								
4-6																								
7-9																								
10-12																								
post 12																								
Types of Students:																								
Learning disabled																								
Mentally handicapped																								
Behaviorally/emotionally handicapped																								
Gifted																								
Other classified (e.g., Chapter 1, LEP)																								
General education																								
FOCUS OF INTERVENTION:																								
Classroom																								
Schoolwide																								
Districtwide																								
Intended Student Outcomes:																								
Academic competence																								
Behavioral competence																								
Social competence																								

Figure 4. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →)																								
FOCUS OF INTERVENTION *(continued)*																								
Intended System Outcomes:																								
Restructuring																								
Shared decision making																								
Teacher skill development																								
Reorganization																								
Instructional Content:																								
Language arts																								
Mathematics																								
Other academic subjects																								
Study skills																								
Thinking skills																								
Behavioral/social skills																								
IMPLEMENTATION REQUIREMENTS:																								
Teacher manual/guide																								
Instructional materials:																								
consumbable																								
nonconsumable																								
Curriculum:																								
replacement/addition																								
integrate with existing																								

Figure 4. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →)																								
Implementation Requirements *(continued)*																								
Staffing																								
Training:																								
self																								
external																								
Facilities:																								
additional																								
modify existing																								
EVIDENCE OF EFFECTIVENESS:																								
Evaluation Component(s) Included																								
Program effectiveness directly studied																								
Program methods/components have been studied																								

Use of the Matrix

In this section we provide an example of how the decision-making matrix is used. To illustrate the flexibility and comprehensibility of the matrix, we demonstrate its use with 16 programs we visited during the process of developing and testing this framework. Following is a brief description of each program.

- **High/Scope Curriculum,**
  developed by David Weikart

  The High/Scope Curriculum is a cognitively oriented early childhood (preschool through grade 3) program that uses the concept that educational activities should be attuned to each child's level of development.

- **Strategies Intervention Model,**
  developed by Don Deshler and Jan Schumaker

  The Strategies Intervention Model (SIM) curriculum is a series of specific intervention strategies used to teach students "how to learn." Designed for adolescents with learning disabilities, the curriculum includes strategies for students, specific instructional procedures for teachers, and the arrangement of a strategic environment in order to promote effective and efficient learning behavior.

- **Tactics for Thinking,**
  developed by Robert J. Marzano and Daisy E. Arrendondo

  Tactics for Thinking is a systematic approach for teaching 22 general cognitive operations (or "thinking skills") that students can use in learning curriculum content and coping with their studies. Designed for general education students in K-12, the thinking skills are categorized into three distinct groups: learning-to-learn skills, content thinking skills, and reasoning skills.

- **Direct Instruction,**
  developed by S. Englemann, W.C. Becker, and D. Carnine

  Direct Instruction (DI) is a comprehensive system of classroom organization, course content, and teaching techniques. DI is designed to:

  - Teach academic content, higher order thinking skills, and survival skills in a variety of subject areas (e.g., reading, language, and mathematics);
  - Enable students to learn more efficiently than with traditional methods of instruction;
  - Elicit a high level of student participation;
  - Ensure high rates of student success; and
  - Increase students' self-concept, persistence, inquisitiveness, responsibility, and risk taking.

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- **Mastery Learning,**
  developed by Benjamin Bloom

  Mastery Learning (ML) is a teacher-directed, whole-group, outcome-based instructional model that is designed to help teachers of students in grades K-12 teach more effectively and to help students learn more efficiently.

  ML is integrated into the existing curriculum. ML teachers organize the curriculum into instructional units and develop an instructional plan for each unit. The plan includes unit and lesson objectives, prerequisites for learning the new content, materials and activities, time allocations, formative and mastery tests, and cut-off scores to determine mastery.

- **Learning Styles,**
  developed by Rita Dunn

  The Learning Styles Model (LSM) is an individualized instructional process that matches learning style preferences with instructional procedures and materials. The primary goal of LSM is to improve the effectiveness of instruction through the identification and matching of individual learning styles with appropriate instructional procedures and materials.

  The LSM was developed for use in general education classrooms at the elementary and secondary levels.

- **SUCCESS: Success Using Contingencies to Create Effective Social Skills,**
  developed by Hill M. Walker, Hyman Hops, and Charles R. Greenwood

  SUCCESS consists of four separate packages or programs designed to assist teachers in managing four behavior disorders that are commonly encountered in grades K-3, and that contribute to school failure and developmental adjustment problems.

- **Student Team Learning,**
  developed by Robert Slavin

  Student Team Learning (STL) consists of four whole-class instructional methods that engage students in cooperative learning to pursue common academic and social goals. These common goals are to motivate students to learn, enable the instruction of students with a wide range of skills and abilities within a single classroom, improve achievement in basic subject areas, and enhance social skills.

  STL was designed for students of all levels of academic achievement in grades 3-12, including those with mild to moderate disabilities.

- **Classwide Student Tutoring Teams,**
  developed by Larry Maheady, Gregory F. Harper, Katherine Sacca, and Barbara Mallette

  Classwide Student Tutoring Teams (CSTT) is a cooperative learning model that uses peer tutoring and team competition to actively involve students in the learning process. CSTT was developed for students with a wide range of abilities, from elementary through high school levels, as an alternative classroom management technique to independent seatwork and traditional drill and practice activities.

- **Adaptive Learning Environments Model,**
  developed by Margaret C. Wang

  The Adaptive Learning Environments Model (ALEM) is a comprehensive educational program for meeting the diverse social and academic needs of individual students of high, average, and low levels of academic achievement in grades K-12. The ALEM features (1) individualized progress plans, (2) a diagnostic-prescriptive monitoring system, (3) a student self-schedule system that helps students take on increasing responsibility for their own behavior and learning progress, and (4) support system that includes an adaptive program delivery system, a data-based staff development sequence, features that promote flexibility in school and classroom organizational patterns, and a systematic program for active family involvement.

- **Vermont Consulting Teacher Model,**
  developed by H. McKenzie, A. Egner, M. (Fitzgerald) Knight, P. Perelman, B. Schneider, and J. Garvin

  The Vermont Consulting Teacher model is a special education service delivery option. Through this model, a school-based consulting teacher collaborates with families, teachers, and other professionals to meet the needs of students with disabilities within the general education classroom.

- **North Carolina Lead Teacher Model,**
  developed by the Public School Forum of North Carolina

  The North Carolina (NC) Lead Teacher model is a restructuring approach that is designed to increase student performance by increasing the autonomy that teachers and local schools have in making decisions about nearly all aspects of instruction and the school environment. The team approach fosters an attitude of responsibility for all students in the school, including those with special learning needs.

- **Comprehensive Local School,**
  developed by Wayne Sailor, Jacki Anderson, Ann Halvorsen, Kathy Doering, Jon Filler, and Lori Goetz

  The Comprehensive Local School (CLS) is an organizational program that provides a structure for merging special and general education into a single system wherein students with disabilities from preschool through young adulthood are served in their neighborhood schools. A five-phased program, CLS incorporates two central concepts: heterogeneous groupings and the community at large as the primary educational environment.

- **Coalition of Essential Schools,**
  developed by Ted Sizer

  The Coalition of Essential Schools is a school restructuring enterprise that joins selected schools in a cooperative program designed to modify the priorities and simplify the structures of participating schools. Coalition schools are guided by nine common principles.

  Originally designed to focus on secondary schools, the Coalition now includes elementary, middle/junior high, and senior high schools.

- **Teacher Assistance Team,**
  developed by Margaret Van Dusen Pysh and James Chalfant

  The Teacher Assistance Team (TAT) is a school-based problem-solving system where teachers assist each other in generating intervention strategies for any student or problematic situation. TATs typically are composed of three or four elected faculty members who meet weekly to provide problem-solving assistance to anyone in the building.

  TATs can be implemented in elementary, middle/junior high, and senior high schools.

- **Project RIDE (Responding to Individual Differences in Education),**
  developed by Great Falls Public Schools, MT; Ray Beck, Project Director

  Project RIDE is a multi-faceted program designed to support the classroom teacher in accommodating at-risk learners in a learning environment that is as close to the regular classroom setting as possible. RIDE has three major components: (1) Effective Classroom Practices, (2) a computerized Tactics Bank and Video Library, and (3) School-Wide Assistance Teams.

Figure 5 provides an example of how program information, such as that listed for 16 visited programs, would be recorded for one program, Student Team Learning. First, the program title was recorded in the column for programs following an instructional approach that focuses on instructional delivery. Student Team Learning is also classified as a type of program that emphasizes students working together in cooperative learning groups, guiding one another in the learning process. In the column below the title, an "x" or other identifying information has been placed in the rows that correspond to program characteristics applicable to Student Team Learning. As can be seen in Figure 5, Student Team Learning is targeted for students in grades three through six who have mild/moderate disabilities or other learning needs as well as students in general education settings. The focus of intervention for Student Team Learning is the classroom setting with academic and social competence intended as outcomes for students. Additionally, use of Student Team Learning will introduce shared decision making among students and teachers and result in reorganization of the classroom to accommodate cooperative learning groups. Language arts, mathematics, and other academic subjects can be addressed using Student Team Learning. Implementation of Student Team Learning is assisted by provision of a teacher's manual, consumable and nonconsumable instructional materials, and a curriculum that can be integrated with or replace an existing curriculum. Training in the program's use is available from external trainers. An evaluation instrument is provided for the mathematics curriculum. The program's effectiveness has been evaluated, and studies have been conducted on the effectiveness of specific components of the program.

Program information can be recorded for one or several programs of interest. Figure 6 shows how the Matrix can be used to record information about several programs at one time. The 16 programs previously described have been included to demonstrate use of the Matrix. After recording information about several programs, a user can compare across programs to select the ones that appear to have the greatest potential for meeting school or district goals.

Preparation of the Final Product

The final task of this project was to develop an information package that presented the decision-making framework and described its usefulness as a tool for assisting school practitioners in the review and consideration of programs that hold promise for facilitating

Figure 5. DECISION-MAKING MATRIX

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) **PROGRAM CHARACTERISTICS**													Student Team Learning											
TARGET POPULATION:																								
Grade Levels:																								
pre K																								
K-3													3											
4-6													X											
7-9																								
10-12																								
post 12																								
Types of Students:																								
Learning disabled													M/M											
Mentally handicapped													M/M											
Behaviorally/emotionally handicapped													M/M											
Gifted													X											
Other classified (e.g., Chapter 1, LEP)													X											
General education													X											
FOCUS OF INTERVENTION:																								
Classroom													X											
Schoolwide																								
Districtwide																								
Intended Student Outcomes:																								
Academic competence													X											
Behavioral competence																								
Social competence													X											

M - mild
M/M- mild/moderate

Figure 5. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →)													Student Team Learning											
FOCUS OF INTERVENTION *(continued)*																								
Intended System Outcomes:																								
Restructuring																								
Shared decision making													X											
Teacher skill development																								
Reorganization													X											
Instructional Content:																								
Language arts													X											
Mathematics													X											
Other academic subjects													X											
Study skills																								
Thinking skills																								
Behavioral/social skills																								
IMPLEMENTATION REQUIREMENTS:																								
Teacher manual/guide													X											
Instructional materials:																								
consumbable													X											
nonconsumable													X											
Curriculum:																								
replacement/addition													Math only											
integrate with existing													X											

Figure 5. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →)													Student Team Learning											
Implementation Requirements *(continued)*																								
Staffing																								
Training:																								
self																								
external													X											
Facilities:																								
additional																								
modify existing																								
EVIDENCE OF EFFECTIVENESS:																								
Evaluation Component(s) Included													Math Only											
Program effectiveness directly studied													X											
Program methods/components have been studied													X											

Figure 6. DECISION-MAKING MATRIX

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) **PROGRAM CHARACTERISTICS**	High/Scope Curriculum				Strategies Intervention Model	Tactics for Thinking			Direct Instruction	Mastery Learning	Learning Styles	SUCCESS	Student Team Learning	Classwide Student Tutoring Teams			Adaptive Learning Environments	Vermont Consult. Tchr.	Teacher Assistance Teams	Project RIDE	N.C. Lead Teacher	Comprehensive Local School	Coalition for Essential Schs.	
TARGET POPULATION:																								
Grade Levels:																								
pre K	X									X								X	X	X		X		
K-3	X					X			X	X	X	X	3	X			X	X	X	X	X	X	X	
4-6						X			X	X	X		X	X			X	X	X	X	X	X	X	
7-9					X	X			X	X	X			X				X	X	X	X	X	X	
10-12					X	X			X	X	X			X				X	X	X	X	X	X	
post 12																								
Types of Students:																								
Learning disabled	M/M				M/M/S	M/M			M/M	M/M/S	M/M		M/M	M			M/M	M/M	M/M	M/M	M/M	M/M/S	M	
Mentally handicapped	M/M				M/M	M/M			M/M	M/M/S	M/M		M/M	M			M/M	M/M	M/M	M/M	M/M	M/M/S	M	
Behaviorally/emotionally handicapped	M/M				M/M	M/M			M/M	M/M/S	M/M	M/M/S	M/M	M			M/M	M/M	M/M	M/M	M/M	M/M/S	M	
Gifted	X					X				X	X		X	X			X	X	X	X	X		X	
Other classified (e.g., Chapter 1, LEP)	X					X			X	X	X		X	X			X	X	X	X	X		X	
General education	X				X	X			X	X	X	X	X	X			X	X	X	X	X		X	
FOCUS OF INTERVENTION:																								
Classroom	X				X	X			X	X	X	X	X	X			X	X	X	X				
Schoolwide																					X	X	X	
Districtwide																						X		
Intended Student Outcomes:																								
Academic competence	X				X	X			X	X	X		X	X			X	X	X	X		X	X	
Behavioral competence												X						X	X	X		X	X	
Social competence												X	X					X	X	X		X	X	

M = mild
M/M - mild/moderate
M/M/S - mild/moderate/severe

Figure 6. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) **FOCUS OF INTERVENTION** *(continued)*	High/Scope Curriculum				Strategies Intervention Model	Tactics for Thinking			Direct Instruction	Mastery Learning	Learning Styles	SUCCESS	Student Team Learning	Classwide Student Tutoring Teams			Adaptive Lrng. Environments	Vermont Consulting Tchr.	Teacher Assistance Teams	Project RIDE	N.C. Lead Teacher	Comprehensive Local School	Coalition for Essential Schs.	
Intended System Outcomes:																								
Restructuring																	X	X	X	X	X	X	X	
Shared decision making													X					X	X	X	X	X	X	
Teacher skill development																	X	X	X	X	X	X		
Reorganization													X				X					X		
Instructional Content:																								
Language arts	X								X	X	X		X	X			X	X	X	X				
Mathematics	X								X	X	X		X	X			X	X	X	X				
Other academic subjects	X								X	X	X		X	X			X	X	X	X				
Study skills					X	X												X	X	X				
Thinking skills	X				X	X												X	X	X				
Behavioral/social skills												X	X				X	X	X	X				
IMPLEMENTATION REQUIREMENTS:																								
Teacher manual/guide					X	X					X	X	X	X						X				
Instructional materials:																								
consumbable									X		X		X											
nonconsumable						X						X	X											
Curriculum:																								
replacement/addition	X				X	X			X			X	X											
integrate with existing						X			X	X	X		X	X			X							

Figure 6. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) **Implementation Requirements** *(continued)*	High/Scope Curriculum				Strategies Intervention Model	Tactics for Thinking			Direct Instruction	Mastery Learning	Learning Styles	SUCCESS	Student Tea Learning	Classwide Student Tutoring			Adaptive Lrng. Environments	Vermont Consulting Tchr.	Teacher Assistance Team	Project RIDE	N.C. Lead Teacher	Comprehensive Local School	Coalition for Essential Schs.	
Staffing									X			X					X	X			X	X	X	
Training:																								
self												X		X							X	X	X	
external	X				X	X			X	X	X	X	X	X			X	X	X	X	X	X		
Facilities:																								
additional																								
modify existing											X	X					X					X		
EVIDENCE OF EFFECTIVENESS:																								
Evaluation Component(s) Included	X				X				X	X	X		Math Only											
Program effectiveness directly studied	X				X				X			X	X					X		X				
Program methods/components have been studied					X	X				X	X		X	X			X	X	X	X	X	X	X	

their efforts to integrate students with disabilities in general education settings. We developed Educational Approaches and Program Options for Integrating Students with Disabilities: A Decision Tool to contain and describe the decision-making framework and to provide information about the 16 programs we examined in depth. Additionally, information is provided about the importance of systematic planning to the successful implementation of programs. This product offers one way to go about planning for program implementation and the changes that will necessarily occur as the result of introducing a new program into a school or district.

Dissemination Activities

The impact of this study is dependent on the extent to which practitioners have access to the decision-making framework. Several dissemination related activities were planned to ensure access to Educational Approaches and Program Options for Integrating Students With Disabilities: A Decision Tool. Dissemination activities include: packaging the final product in a "user friendly" format; testing the utility of the framework and supporting documentation using focus groups comprised of representatives of the targeted user groups; presenting the framework at conferences and conventions; and, exploring formal government and private opportunities for publication of our product.

APPENDIX A

EDUCATIONAL APPROACHES AND PROGRAM OPTIONS FOR INTEGRATING STUDENTS WITH DISABILITIES: A DECISION TOOL

Educational Approaches and Program Options for Integrating Students with Disabilities:

A Decision Tool

Developed by:

Research Triangle Institute
P.O. Box 12194
Research Triangle Park, NC 27709

1992©

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Joni Alberg
Project Director

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JONI ALBERG, Educational Research Scientist in the Center for Research in Education at the Research Triangle Institute, directed the OSEP funded project from which this product emerged. Dr. Alberg served as primary author for several of the educational program descriptions included in this text and served as editor.

LYNNE COOK, Director of the Clearinghouse on Professions in Special Education, co-authored with Dr. Marilyn Friend the text Interactions: Collaboration Skills for School Professionals (1992; available for Longman Publisher, New York) upon which Chapter 3 (Planning for Program Implementation) is based.

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In addition to the authors listed above, **PROGRAM DEVELOPERS** provided substantive input to the development of the description of their program. Their names are listed with the summary of their program.

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CHAPTER 1

INTRODUCTION

Since the passage of Public Law 94-142 (the Education for All Handicapped Children Act of 1975), increasing emphasis has been placed on providing appropriate educational opportunities for students with disabilities within general education settings. Indeed, according to a recent national report, over two-thirds of all students with disabilities receive the majority of their education in general rather than special education programs (U.S. Department of Education, 1990). One of the primary challenges for educators regarding implementation of P.L. 94-142 is determining when integrated educational opportunities can occur and maximizing those opportunities for students with disabilities. This challenge is enhanced by the need to develop specific general education programs that address the growing cultural and racial diversity of the total student population. The abilities, cultures, interests, and needs of general education students in schools and classrooms across the country are becoming increasingly diversified. The inclusion of students with disabilities in these schools and classrooms further extends this diversity.

Numerous programs are available for use with diverse populations of students in a variety of instr[illegible] and administrative situations. These programs, developed for both general and special education, provide many options from which schools may choose. With the quantity of information available, it can be difficult for school personnel to choose the type of program that will work best for their students within their particular school setting. There is clearly a need to assist educators who are in the process of addressing this challenge by providing information and guidance.

It is important to understand that no single strategy or approach can be used by all schools to establish integrated educational opportunities for students with diverse abilities. It follows then, that information about available programs and an awareness of the district's and/or school's own needs will be required when choosing from among the variety of approaches. However, a framework to help teachers and administrators easily and efficiently reflect upon the range of available choices and make sound decisions about the viability of certain programs in their district has not been available. Teachers and administrators need to know the premises upon which the various approaches are based, the predicted outcomes of using a particular program, and the potential impact that implementing it will have on students, staff, and the community. Additionally, school administrators need to know what kinds of resources, both human and fiscal, are necessary for implementing a given program, the length of time it will take to get the program "up and running" in the school or district, and the success other implementors have had with program implementation.

Educational Approaches and Program Options for Integrating Students with Disabilities: A Decision Tool is designed to address these decision making needs. It provides a framework for organizing and classifying educational programs into manageable groupings so as to simplify examination and selection. The decision-making framework we have developed and present in Chapter 2 permits programs to be classified according to their approaches to intervention and described according to general characteristics of each program. General program descriptions include characteristics of the target population, focus of the program's intervention, implementation requirements, and evidence of effectiveness.

Development of Educational Approaches and Program Options for Integrating Student with Disabilities: A Decision Tool was guided by the assumption that you will have already made the decision to integrate students with disabilities and other diverse learning needs into the general education programs in your school or district. We hope this manual will help you in selecting the program(s) that will facilitate your integration efforts.

How This Product Was Developed

This manual is the culmination of a three and one half year federally funded project. Support for the project was provided by the Division for Innovation and Development, Office of Special Education Programs, U.S. Department of Education. The project was designed to provide information to local schools and districts to assist them in choosing among various educational approaches to serving children and youth with diverse abilities, especially those with disabilities, in general education settings. To meet this objective, we developed a framework for organizing various approaches and programs that can be used to guide you in choosing the programs that will help you reach your goals for integration. Information about the approaches and programs was collected and organized in a manner that allows educational personnel to reflect on the range of choices available, examine the premises on which various approaches are based, and predict the outcome of using a particular program.

In developing this product, we talked with school and district-level decision-makers about how and why they selected and implemented particular programs and what they hoped to accomplish as a result of program implementation. The information they shared not only directed our efforts in collecting information about the educational programs we selected as examples of available approaches but also shaped and influenced the format and content of this manual. It is our strong belief that the input of school and district personnel was critical to our development of a product that is worthwhile and useful for practitioners.

Selecting the programs. Information from a variety of sources, including literature searches, recommendations of experts, and contacts with school district personnel led us to the identification of a large number of approaches and programs for potential study. We considered both special and general education programs. Further, we attempted to locate a sample of programs that, while not designed explicitly for integration, support it.

Our efforts revealed a large number of programs. Selection of programs described in the manual was guided by several criteria. First, because program effectiveness is a primary concern of most school decision makers, programs were reviewed and selected for consideration according to whether or not effectiveness data were available. More than 60 programs were identified as having sufficient effectiveness data for inclusion. In addition, to be selected programs had to have been in existence for at least 2 years. Further, the program had to address the issues inherent in integration, and demonstrate the ability or potential for meeting the needs of students with disabilities in general education classrooms. Finally, the program had to be implemented in more than one school district, preferably at some distance from the program's developer.

In some cases, we identified several programs having similar features. For instance, there are multiple instructional programs focused on "cooperative learning", "learning styles", and "teacher collaboration." Generally, only one program of each type was selected, so as to provide you with a broader array of program types.

The reader should note that the 16 programs selected for description in this guide are in no way inclusive of all programs. Rather, they are representative of programs which met certain standards and criteria (as described above) and which represent the broad array of options across various approaches. We encourage you to look beyond these 16 programs as you search for ways to integrate students with disabilities and other learning problems.

Collecting critical information. Once we selected a program we completed the review of the literature that described and documented the program. We reviewed books, journal articles, unpublished reports, manuals, and training materials. Using the information obtained from these sources we developed a draft summary of the program.

We then held face-to-face meetings with the program developer(s) and a selected school district implementor to gather additional data about the program. From these meetings we confirmed the written information in our summary and gathered more extensive information about program development and implementation.

In conducting the site visits our goals were to: (a) validate information about implementation provided during the meetings with the developer(s); (b) collect information about how and why the program was selected for implementation in the district; (c) gather additional information about program implementation; and (d) gain insight into the program's potential for replication in diverse sites. In selecting the sites, we based our final decision on four criteria:

(a) The program was currently functioning in the district;

(b) The program had been implemented with students who have disabilities;

(c) Individuals who had key roles in the initial planning and implementation were available for interview; and

(d) The district had collected some form of effectiveness data for the program.

Finally, we incorporated information gathered from site visits and from the developer(s) into program summaries. Program developers and implementors reviewed the program summaries for accuracy.

Organizing information for this guide. Once we completed our information gathering efforts we shared the program summaries and drafts of this product with small groups of representatives of our target audiences (principals, district administrators, teachers). By responding to focused questions, participants provided us with necessary and critical feedback on each component so that we were assured of creating a useful resource tool for you.

What We Learned Along the Way

The successful selection and implementation of educational programs that support the integration of students with disabilities is dependent on the commitment and support of all who will be involved in carrying out the program(s). Several principles related to the selection and implementation of educational programs emerged from our interviews with school and district practitioners, students, and parents who have been involved in the implementation of the programs presented in Chapter 4. Their insights follow.

(1) There is no **one** implementation model or program that will work for all students in all schools and school districts.

(2) Systematic planning is essential to the successful selection, design, and implementation of a new program. Adequate support for planning and implementation--fiscal resources, time, training, etc. is required.

(3) The successful selection and implementation of a program requires team decision-making, involving representatives of stakeholder groups.

(4) Implementation is an ongoing process that requires time. You should plan at least three to five years to get a program in full operation.

(5) Implementation of a new program requires change. Those involved with the implementation must be prepared and plan for the change that will occur.

(6) The surest way to "kill" a program is to mandate its use. It is much better to start with a few volunteers and to "grow" as more people become interested.

(7) Successful implementation requires administrative "buy in" at the building level.

How the Remainder of This Manual is Organized

The remainder of this manual is designed to lead you through the process of planning for implementation. In Chapter 2 we present a framework for classifying programs to guide you in examining, considering, and selecting a program for your setting. Chapter 3 reviews a planning process that you can use to prepare you for program review, selection, and implementation stressing the importance of planning prior to implementing any "new" program in your school or district. In Chapter 4 we describe 16 programs along the key dimensions presented in our decision-making framework (Chapter 2) to demonstrate how program information can be extracted and systematically synthesized so that informed decisions can be made.

CHAPTER 2

A DECISION-MAKING FRAMEWORK

In this chapter we present our framework for classifying educational programs and organizing their descriptive information. The purpose of the framework is to provide a tool that will facilitate your examination, consideration, and selection of programs that will help you meet your goals for the integration of students with disabilities into general education settings. We designed the framework to provide (1) a means for classifying individual programs according to approach, focus, and type of educational intervention; and (2) information critical to your selection of a program (e.g., target audience, focus of intervention, implementation requirements, and evidence of effectiveness in a brief format. "Educational intervention," in the context of this framework, refers to any strategy, process, or procedure applied in an educational setting (classroom, school, or district) for the purpose of altering the status quo.

It is important to note that, although designed to facilitate examination of programs for meeting goals related to the integration of students with disabilities, the framework may be used to review and consider programs for a variety of purposes. The important point to remember is that you first must articulate your needs and goals and then seek out approaches and program options to assist you in meeting those goals.

UNDERSTANDING THE FRAMEWORK

Schema for Classifying Education Programs

The classification schema developed for the framework permits educational programs to be classified at several levels--first according to broad commonalities in their approach to intervention and then, more specifically, according to the focus and type of intervention. For example, at Level 1 programs are classified as following an instructional or administrative approach. At the next level (Level 2), instructional programs are classified as focusing on curriculum or instructional delivery while administrative programs are classified as focusing on classroom restructuring or school/district restructuring. Finally, programs following an instructional approach can be further classified according to the type

(Level 3) of curriculum or instructional delivery each program emphasizes: academic or strategy and process curriculum and teacher-directed or student-guided instructional delivery. This multilevel schema, presented in Figure 1, permits program classification according to distinctive aspects of the intervention approach. Each of these levels is further described below.

Level 1: Program Approach

Using the schema, the initial step in classifying programs is to determine the primary approach to intervention that each program follows. For purposes of this framework the term "approach" refers to the method used to facilitate the integration of students with disabilities into general education settings. According to our framework, programs will take an instructional approach or an administrative approach.

Instructional approach. Programs following an instructional approach address the content (i.e., curricula) and process of instruction (i.e., the methods and procedures required to deliver content). Instructional programs may be implemented in a single classroom, several classrooms, or an entire school or district.

Administrative approach. Programs that follow an administrative approach address the structures and strategies used to provide educational programs. Administrative programs may address educational program implementation in classrooms, schools, or districts.

Level 2: Program Focus

Once programs have been classified according to their primary approach to intervention, they can be further classified according to specific focus within each approach. Used here, "focus" refers to the central interest or activity of the instructional or administrative intervention. According to our framework, instructional programs can be further classified as having a curriculum or instructional delivery focus, while administrative programs can be further classified as having a classroom restructuring or school/district restructuring focus.

Curriculum focus. Curriculum programs are designed to teach specific content. The content may focus on academic subjects, developmental skills, learning strategy and process (including thinking) skills, and social skills. Curriculum programs require that time be allotted for teaching the content to students.

FIGURE 1

CLASSIFICATION SCHEMA FOR PROGRAM APPROACHES

Instructional Approach				Administrative Approach	
Curriculum		Instructional Delivery		Classroom Restructuring	School/District Restructuring
Academic	Strategy/ Process	Teacher Directed	Student Guided		

Instructional delivery focus. Instructional delivery programs are designed to provide methods and strategies for teaching content to students; i.e., the focus of these delivery programs is on the process of instruction.

Classroom restructuring focus. Programs that focus on classroom restructuring emphasize the alteration of classroom processes and procedures to accommodate the needs of diverse student populations. Classroom restructuring programs may emphasize changing operational or procedural aspects of the classroom, such as individualizing instruction for all students or providing specialized instruction within the general education class setting.

School/district restructuring focus. Programs that focus on school/district restructuring emphasize the alteration of school or district structures to accommodate the needs of diverse student populations. School/district restructuring programs may emphasize placement of programmatic and administrative decision making at the school building level; non-graded classes; school-within-a-school; or neighborhood schools.

Level 3: Program Type

The final classification level included in our framework applies only to programs classified as following an instructional approach. The need for a third level of classification for instructional programs is due to the large number of available programs that can be classified as following an instructional approach. The addition of this third level provides a means for further classifying programs within each instructional focus area by program type, i.e., according to specific program commonalities or traits. According to the framework, instructional programs having a curriculum focus will be of two types: those that emphasize instruction in academic skills and those that emphasize instruction in strategies and processes that improve the learning of academic content. Instructional programs having an instructional delivery focus will emphasize instructional processes and procedures that are either teacher-directed or student-guided.

Instructional programs having a curriculum focus. Academic skills programs are used to teach students curriculum content, including the primary content areas of reading, language, mathematics, science, and social studies. Additionally, academic skills programs may focus on developmental skills.

Strategy and process programs are used to teach students procedures for gaining access to and processing information. Programs for teaching strategies and processes for learning and thinking provide a curriculum that must be first taught in isolation (i.e., in addition to the existing academic curriculum) and then applied in a variety of learning situations.

Instructional programs having an instructional delivery focus. Teacher-directed programs emphasize methods of instruction that can be applied to a variety of curricula. In this type of program the teacher is the primary facilitator of the instructional process.

Student-guided programs emphasize the involvement of students as facilitators of instruction. Although teachers must organize and manage the process of student-guided instruction, students assume primary responsibility for their own and their classmates' learning.

Schema for Describing Programs

In addition to providing a schema for classifying programs, the framework provides a means for recording important information about program characteristics. Included in the framework is a schema for describing programs that permits you to record, for each program of interest: characteristics of the target population for the program; focus of the program's intervention; implementation requirements; and evidence of effectiveness.

Target population. Two kinds of information may be recorded about the target population for whom a program was developed. The grade level(s) and types of students for whom the program is appropriate are identified. Grade level groupings include Pre K, K-3, 4-6, 7-9, 10-12, and Post 12. Student types include students with learning disabilities, mental handicaps, behavioral/emotional handicaps, gifts, and other classifications (e.g., Chapter 1, Limited English Proficient), as well as students in general education programs.

Focus of intervention. The focus of intervention addresses the location for implementation, intended student and system outcomes, and the instructional content of the program. The location of implementation may be the classroom, the school, or the district. Intended student outcomes are academic competence, behavioral competence, and social competence, while intended system outcomes are restructuring, shared decision making, teacher skill development, and reorganization.

Implementation requirements. Information about implementation requirements can be recorded by indicating if a program component is provided or required. The following components are addressed: teacher manual or guide; instructional materials, and whether they are consumable or nonconsumable; curriculum, and whether the curriculum is considered as a replacement or addition or can be integrated with existing curricula; staffing (i.e., requirements for specific staff assignments or need for additional staff); training, and whether users can self-train or have access to external trainers; and facilities--whether additional facilities are necessary or if existing facilities need to be modified.

Evidence of effectiveness. Two kinds of information are recorded under this area. First, the inclusion of an evaluation component can be noted. Second, the kinds of program evaluation--direct evaluation of program effectiveness or evaluation of program methods or components--that have been conducted can be recorded.

USING THE FRAMEWORK

The Decision-Making Matrix

In the preceding section, we described components of the decision-making framework. Figure 2 presents the framework for classifying and describing programs, referred to as the "Decision-Making Matrix." The Matrix permits a program to be described along two dimensions--its approach to intervention (using the approach classification schema across the top of the Matrix), and its characteristics as a program (using the program descriptor schema along the left side of the Matrix). For example, first you determine the approach to intervention followed by a program of interest. Next, the focus and, in the case of programs following an instructional approach, type of program must be determined. The title of the program is then entered in the Matrix in the first row of the column under its designated approach, focus, and type. You are now ready to record information about the program's characteristics. For each item included under "Program Characteristics" on the left side of the Matrix, record relevant information in the box where the row for the descriptor of interest meets the column of the program under review.

Figure 2. DECISION-MAKING MATRIX

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) **PROGRAM CHARACTERISTICS**																								
TARGET POPULATION:																								
Grade Levels:																								
pre K																								
K-3																								
4-6																								
7-9																								
10-12																								
post 12																								
Types of Students:																								
Learning disabled																								
Mentally handicapped																								
Behaviorally/emotionally handicapped																								
Gifted																								
Other classified (e.g., Chapter 1, LEP)																								
General education																								
FOCUS OF INTERVENTION:																								
Classroom																								
Schoolwide																								
Districtwide																								
Intended Student Outcomes:																								
Academic competence																								
Behavioral competence																								
Social competence																								

Figure 2. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →)																								
FOCUS OF INTERVENTION *(continued)*																								
Intended System Outcomes:																								
Restructuring																								
Shared decision making																								
Teacher skill development																								
Reorganization																								
Instructional Content:																								
Language arts																								
Mathematics																								
Other academic subjects																								
Study skills																								
Thinking skills																								
Behavioral/social skills																								
IMPLEMENTATION REQUIREMENTS:																								
Teacher manual/guide																								
Instructional materials:																								
consumbable																								
nonconsumable																								
Curriculum:																								
replacement/addition																								
integrate with existing																								

Figure 2. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →)																								
Implementation Requirements *(continued)*																								
Staffing																								
Training:																								
self																								
external																								
Facilities:																								
additional																								
modify existing																								
EVIDENCE OF EFFECTIVENESS:																								
Evaluation Component(s) Included																								
Program effectiveness directly studied																								
Program methods/components have been studied																								

Use of the Matrix

In this section we provide an example of how the decision-making matrix is used. To illustrate the flexibility and comprehensibility of the matrix, we demonstrate its use with 16 programs we visited during the process of developing and testing this framework. (See Chapter 1 for a discussion of how these programs were selected.) Following is a brief description of each program.

- **High/Scope Curriculum,**
  developed by David Weikart

  The High/Scope Curriculum is a cognitively oriented early childhood (preschool through grade 3) program that uses the concept that educational activities should be attuned to each child's level of development.

- **Strategies Intervention Model,**
  developed by Don Deshler and Jan Schumaker

  The Strategies Intervention Model (SIM) curriculum is a series of specific intervention strategies used to teach students "how to learn." Designed for adolescents with learning disabilities, the curriculum includes strategies for students, specific instructional procedures for teachers, and the arrangement of a strategic environment in order to promote effective and efficient learning behavior.

- **Tactics for Thinking,**
  developed by Robert J. Marzano and Daisy E. Arrendondo

  Tactics for Thinking is a systematic approach for teaching 22 general cognitive operations (or "thinking skills") that students can use in learning curriculum content and coping with their studies. Designed for general education students in K-12, the thinking skills are categorized into three distinct groups: learning-to-learn skills, content thinking skills, and reasoning skills.

- **Direct Instruction,**
  developed by S. Englemann, W.C. Becker, and D. Carnine

  Direct Instruction (DI) is a comprehensive system of classroom organization, course content, and teaching techniques. DI is designed to:

  - Teach academic content, higher order thinking skills, and survival skills in a variety of subject areas (e.g., reading, language, and mathematics);
  - Enable students to learn more efficiently than with traditional methods of instruction;
  - Elicit a high level of student participation;
  - Ensure high rates of student success; and
  - Increase students' self-concept, persistence, inquisitiveness, responsibility, and risk taking.

- **Mastery Learning,**
  developed by Benjamin Bloom

  Mastery Learning (ML) is a teacher-directed, whole-group, outcome-based instructional model that is designed to help teachers of students in grades K-12 teach more effectively and to help students learn more efficiently.

  ML is integrated into the existing curriculum. ML teachers organize the curriculum into instructional units and develop an instructional plan for each unit. The plan includes unit and lesson objectives, prerequisites for learning the new content, materials and activities, time allocations, formative and mastery tests, and cut-off scores to determine mastery.

- **Learning Styles,**
  developed by Rita Dunn

  The Learning Styles Model (LSM) is an individualized instructional process that matches learning style preferences with instructional procedures and materials. The primary goal of LSM is to improve the effectiveness of instruction through the identification and matching of individual learning styles with appropriate instructional procedures and materials.

  The LSM was developed for use in general education classrooms at the elementary and secondary levels.

- **SUCCESS: Success Using Contingencies to Create Effective Social Skills,**
  developed by Hill M. Walker, Hyman Hops, and Charles R. Greenwood

  SUCCESS consists of four separate packages or programs designed to assist teachers in managing four behavior disorders that are commonly encountered in grades K-3, and that contribute to school failure and developmental adjustment problems.

- **Student Team Learning,**
  developed by Robert Slavin

  Student Team Learning (STL) consists of four whole-class instructional methods that engage students in cooperative learning to pursue common academic and social goals. These common goals are to motivate students to learn, enable the instruction of students with a wide range of skills and abilities within a single classroom, improve achievement in basic subject areas, and enhance social skills.

  STL was designed for students of all levels of academic achievement in grades 3-12, including those with mild to moderate disabilities.

- **Classwide Student Tutoring Teams,**
  developed by Larry Maheady, Gregory F. Harper, Katherine Sacca, and Barbara Mallette

  Classwide Student Tutoring Teams (CSTT) is a cooperative learning model that uses peer tutoring and team competition to actively involve students in the learning process. CSTT was developed for students with a wide range of abilities, from elementary through high school levels, as an alternative classroom management technique to independent seatwork and traditional drill and practice activities.

- **Adaptive Learning Environments Model,**
  developed by Margaret C. Wang

  The Adaptive Learning Environments Model (ALEM) is a comprehensive educational program for meeting the diverse social and academic needs of individual students of high, average, and low levels of academic achievement in grades K-12. The ALEM features (1) individualized progress plans, (2) a diagnostic-prescriptive monitoring system, (3) a student self-schedule system that helps students take on increasing responsibility for their own behavior and learning progress, and (4) support system that includes an adaptive program delivery system, a data-based staff development sequence, features that promote flexibility in school and classroom organizational patterns, and a systematic program for active family involvement.

- **Vermont Consulting Teacher Model,**
  developed by H. McKenzie, A. Egner, M. (Fitzgerald) Knight, P. Perelman, B. Schneider, and J. Garvin

  The Vermont Consulting Teacher model is a special education service delivery option. Through this model, a school-based consulting teacher collaborates with families, teachers, and other professionals to meet the needs of students with disabilities within the general education classroom.

- **North Carolina Lead Teacher Model,**
  developed by the Public School Forum of North Carolina

  The North Carolina (NC) Lead Teacher model is a restructuring approach that is designed to increase student performance by increasing the autonomy that teachers and local schools have in making decisions about nearly all aspects of instruction and the school environment. The team approach fosters an attitude of responsibility for all students in the school, including those with special learning needs.

- **Comprehensive Local School,**
  developed by Wayne Sailor, Jacki Anderson, Ann Halvorsen, Kathy Doering, Jon Filler, and Lori Goetz

  The Comprehensive Local School (CLS) is an organizational program that provides a structure for merging special and general education into a single system wherein students with disabilities from preschool through young adulthood are served in their neighborhood schools. A five-phased program, CLS incorporates two central concepts: heterogeneous groupings and the community at large as the primary educational environment.

- **Coalition of Essential Schools,**
  developed by Ted Sizer

  The Coalition of Essential Schools is a school restructuring enterprise that joins selected schools in a cooperative program designed to modify the priorities and simplify the structures of participating schools. Coalition schools are guided by nine common principles.

  Originally designed to focus on secondary schools, the Coalition now includes elementary, middle/junior high, and senior high schools.

- **Teacher Assistance Team,**
  developed by Margaret Van Dusen Pysh and James Chalfant

  The Teacher Assistance Team (TAT) is a school-based problem-solving system where teachers assist each other in generating intervention strategies for any student or problematic situation. TATs typically are composed of three or four elected faculty members who meet weekly to provide problem-solving assistance to anyone in the building.

  TATs can be implemented in elementary, middle/junior high, and senior high schools.

- **Project RIDE (Responding to Individual Differences in Education),**
  developed by Great Falls Public Schools, MT; Ray Beck, Project Director

  Project RIDE is a multi-faceted program designed to support the classroom teacher in accommodating at-risk learners in a learning environment that is as close to the regular classroom setting as possible. RIDE has three major components: (1) Effective Classroom Practices, (2) a computerized Tactics Bank and Video Library, and (3) School-Wide Assistance Teams.

Figure 3 provides an example of how program information, such as that listed for 16 visited programs, would be recorded for one program, Student Team Learning. First, the program title was recorded in the column for programs following an instructional approach that focuses on instructional delivery. Student Team Learning is also classified as a type of program that emphasizes students working together in cooperative learning groups, guiding one another in the learning process. In the column below the title, an "x" or other identifying information has been placed in the rows that correspond to program characteristics applicable to Student Team Learning. As can be seen in Figure 5, Student Team Learning is targeted for students in grades three through six who have mild/moderate disabilities or other learning needs as well as students in general education settings. The focus of intervention for Student Team Learning is the classroom setting with academic and social competence intended as outcomes for students. Additionally, use of Student Team Learning will introduce shared decision making among students and teachers and result in reorganization of the classroom to accommodate cooperative learning groups. Language arts, mathematics, and other academic subjects can be addressed using Student Team Learning. Implementation of Student Team Learning is assisted by provision of a teacher's manual, consumable and nonconsumable instructional materials, and a curriculum that can be integrated with or replace an existing curriculum. Training in the program's use is available from external trainers. An evaluation instrument is provided for the mathematics curriculum. The program's effectiveness has been evaluated, and studies have been conducted on the effectiveness of specific components of the program.

Program information can be recorded for one or several programs of interest. Figure 4 shows how the Matrix can be used to record information about several programs at one time. The 16 programs previously described have been included to demonstrate use of the Matrix. After recording information about several programs, a user can compare across programs to select the ones that appear to have the greatest potential for meeting school or district goals.

After entering information about programs of interest in the matrix, you will be able to determine which program or programs for which you need additional information. For example, you may find that you are interested in knowing more about the programs included as "strategy and process curriculum," "student-guided instructional delivery," and "classroom restructuring." You will then need to gather and summarize information about

Figure 3. DECISION-MAKING MATRIX

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) **PROGRAM CHARACTERISTICS**													Student Team Learning											
TARGET POPULATION:																								
Grade Levels:																								
pre K																								
K-3													3											
4-6													X											
7-9																								
10-12																								
post 12																								
Types of Students:																								
Learning disabled													M/M											
Mentally handicapped													M/M											
Behaviorally/emotionally handicapped													M/M											
Gifted													X											
Other classified (e.g., Chapter 1, LEP)													X											
General education													X											
FOCUS OF INTERVENTION:																								
Classroom													X											
Schoolwide																								
Districtwide																								
Intended Student Outcomes:																								
Academic competence													X											
Behavioral competence																								
Social competence													X											

M/M - mild/moderate

Figure 3. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →)													Student Team Learning											
FOCUS OF INTERVENTION *(continued)*																								
Intended System Outcomes:																								
Restructuring																								
Shared decision making													X											
Teacher skill development																								
Reorganization													X											
Instructional Content:																								
Language arts													X											
Mathematics													X											
Other academic subjects													X											
Study skills																								
Thinking skills																								
Behavioral/social skills																								
IMPLEMENTATION REQUIREMENTS:																								
Teacher manual/guide													X											
Instructional materials:																								
consumbable													X											
nonconsumable													X											
Curriculum:																								
replacement/addition													Math only											
integrate with existing													X											

Figure 3. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) **Implementation Requirements** *(continued)*													Student Team Learning											
Staffing																								
Training:																								
self																								
external													X											
Facilities:																								
additional																								
modify existing																								
EVIDENCE OF EFFECTIVENESS:																								
Evaluation Component(s) Included													Math only											
Program effectiveness directly studied													X											
Program methods/components have been studied													X											

Figure 4. DECISION-MAKING MATRIX

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) **PROGRAM CHARACTERISTICS**	High/Scope Curriculum				Strategies Intervention Model	Tactics for Thinking			Direct Instruction	Mastery Learning	Learning Styles	SUCCESS	Student Team Learning	Classwide Student Tutoring Teams			Adaptive Learning Environments	Vermont Consult. Tchr.	Teacher Assistance Teams	Project RIDE	N.C. Lead Teacher	Comprehensive Local School	Coalition for Essential Schs.	
TARGET POPULATION:																								
Grade Levels:																								
pre K	X									X								X	X	X		X		
K-3	X					X			X	X	X	X	3	X			X	X	X	X	X	X	X	
4-6						X			X	X	X		X	X			X	X	X	X	X	X	X	
7-9					X	X			X	X	X			X				X	X	X	X	X	X	
10-12					X	X			X	X	X			X				X	X	X	X	X	X	
post 12																								
Types of Students:																								
Learning disabled	M/M				M/M/S	M/M			M/M	M/M/S	M/M		M/M	M			M/M	M/M	M/M	M/M	M/M	M/M/S	M	
Mentally handicapped	M/M				M/M	M/M			M/M	M/M/S	M/M		M/M	M			M/M	M/M	M/M	M/M	M/M	M/M/S	M	
Behaviorally/emotionally handicapped	M/M				M/M	M/M			M/M	M/M/S	M/M	M/M/S	M/M	M			M/M	M/M	M/M	M/M	M/M	M/M/S	M	
Gifted	X					X				X	X		X	X			X	X	X	X	X		X	
Other classified (e.g., Chapter 1, LEP)	X					X			X	X	X		X	X			X	X	X	X	X		X	
General education	X				X	X			X	X	X	X	X	X			X	X	X	X	X		X	
FOCUS OF INTERVENTION:																								
Classroom	X				X	X			X	X	X	X	X	X			X	X	X	X				
Schoolwide																					X	X	X	
Districtwide																						X		
Intended Student Outcomes:																								
Academic competence	X				X	X			X	X	X		X	X			X	X	X	X		X	X	
Behavioral competence												X						X	X	X		X	X	
Social competence												X	X					X	X	X		X	X	

M = mild
M/M - mild/moderate
M/M/S mild/moderate/severe

Figure 4. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) FOCUS OF INTERVENTION *(continued)*	High/Scope Curriculum				Strategies Intervention Model	Tactics for Thinking			Direct Instruction	Mastery Learning	Learning Styles	SUCCESS	Student Team Learning	Classwide Student Tutoring Teams			Adaptive Lrng Environments	Vermont Consulting Tchr.	Teacher Assistance Teams	Project RIDE	N.C. Lead Teacher	Comprehensive Local School	Coalition for Essential Schs.	
Intended System Outcomes:																								
Restructuring																	X	X	X	X	X	X	X	
Shared decision making													X					X	X	X	X	X	X	
Teacher skill development																	X	X	X	X	X	X		
Reorganization													X				X					X		
Instructional Content:																								
Language arts	X								X	X	X		X	X			X	X	X	X				
Mathematics	X								X	X	X		X	X			X	X	X	X				
Other academic subjects	X								X	X	X		X	X			X	X	X	X				
Study skills					X	X												X	X	X				
Thinking skills	X				X	X												X	X	X				
Behavioral/social skills												X	X				X	X	X	X				
IMPLEMENTATION REQUIREMENTS:																								
Teacher manual/guide					X	X					X	X	X	X						X				
Instructional materials:																								
consumbable									X		X		X											
nonconsumable						X						X	X											
Curriculum:																								
replacement/addition	X				X	X			X			X	X											
integrate with existing						X			X	X	X		X	X			X							

Figure 4. *(continued)*

	INSTRUCTIONAL APPROACH																ADMINISTRATIVE APPROACH							
	Curriculum								Instructional Delivery															
	Academic Skills				Strategies & Processes				Teacher Directed				Student Guided				Classroom Restructuring				School/District Restructuring			
(Insert program titles here →) **Implementation Requirements** *(continued)*	High/scope Curriculum				Strategies Intervention Model	Tactics for Thinking			Direct Instruction	Mastery Learning	Learning Styles	SUCCESS	Student Team Learning	Classwide Student Tutoring			Adaptive Lrng. Environments	Vermont Consulting Tchr.	Teacher Assistance Team	Project RIDE	N.C. Lead Teacher	Comprehensive Local School	Coalition for Essential Schls	
Staffing									X			X					X	X			X	X	X	
Training:																								
self												X		X							X	X	X	
external	X				X	X			X	X	X	X	X	X			X	X	X	X	X	X		
Facilities:																								
additional																								
modify existing											X	X					X					X		
EVIDENCE OF EFFECTIVENESS:																								
Evaluation Component(s) Included	X				X				X	X	X		Math Only											
Program effectiveness directly studied	X				X				X			X	X					X		X				
Program methods/components have been studied					X	X				X	X		X	X			X	X	X	X	X	X	X	

the program(s) that will be critical to your conclusion about the program's potential for meeting your needs and goals. In Chapter 4, a format is presented for summarizing program information. Using the 16 programs previously described, we prepared one-page brief descriptions and multi-page in-depth summaries. The format for these summaries was guided by participants in our focused reviews (see Chapter 1).

SUMMARY

The purpose of the framework presented in this chapter is to assist you in sorting through and identifying those programs with features that hold the greatest promise and the "best fit" for your setting, preference, and situation. Using a structured planning process like that presented in the next chapter, you can prepare for the final selection and implementation of the program(s) that you believe will help you achieve your goals.

Descriptive information for each of the 16 programs previously presented is provided in Chapter 4. Information about each program's purpose, contribution to mainstreaming, development, implementation requirements, evaluation, and effectiveness is included.

CHAPTER 3

PLANNING FOR PROGRAM IMPLEMENTATION

This chapter is sequentially organized to take you through the process of planning for program implementation. The successful implementation of programs to integrate students with disabilities into general education settings requires a systematic process of planning. In this chapter we offer one way to go about planning for program implementation and the changes that will necessarily occur. If you already have a planning procedure in place continue using it and go on to Chapter 4. If you do not have a planning procedure that you are comfortable with we encourage you to consider the procedure presented on the following pages.

INTRODUCTION

Although few educational programs have been designed for the express purpose of integrating students with disabilities into general education settings, numerous programs exist that have potential for facilitating this integration process. What can schools and districts do that will enable them to determine which program or programs will work best for them? Schools must first determine what goals they wish to accomplish with regards to integrated educational programs. Is the goal to enhance currently integrated programs? Expand opportunities for integration? Improve the overall educational programs of the school or district so that all students have increased opportunities for academic and social achievement? Answers to these questions are needed before a school can even begin to choose a new instructional or administrative method. School and district goals may best be determined by a team comprised of administrators, teachers, support staff, parents, and, where appropriate, students. Once your goals have been established, you need to assess and define the role of your school(s) within the confines of the community and culture it serves. This contextual profile should contain such information as school/district philosophy, values of the community, stability of school staff and student populations, academic emphasis (including curriculum and textbook adoptions), fiscal resources, and local, state, and district policies and procedures. The profile provides valuable information that can directly influence the selection and successful implementation of a program. In other words, understanding the nature and resources of the context for which an educational program is being sought will assist you in selecting an approach and program(s) that "fits" the context, thus ensuring a high probability of successful program implementation and individual goal attainment.

STAGES OF PROGRAM PLANNING AND IMPLEMENTATION

In their work on professional collaboration, Cook and Friend (1990; 1992) propose a model for program planning and implementation that involves a five stage process. We base the following on their model because it is a straightforward approach that reflects many essential elements described in related literature (see for example, Hall & Hord, 1987; Hord, Rutherford, Hulig-Austin, & Hall, 1987; Loucks-Horsley & Hergert, 1985; Saphier, Bigda-Peyton, & Pierson, 1989) and it has been used successfully by many schools and districts. If you do not have a planning procedure in place we encourage you to find a procedure with which you are comfortable. The following procedure is presented for your consideration.

Stage 1: Determining Goals and Initial Structures

Before you can select and successfully implement any program you must clarify what it is you are trying to accomplish. In this initial stage, you will clarify your intended accomplishment by communicating it with others and assessing the support or resistance of others who will be involved in program implementation. The primary purposes of this first step in the planning process are to clarify your intent, begin to negotiate for resources, build relationships, establish a planning structure, assess the context, and set goals.

Clarifying intent. The critical questions to ask and answer are: What do you want to see happen? What outcomes would be acceptable? What are your goals for the students with disabilities? What are your goals for your general education students? What do you want your teachers to know and be able to do? Before you can select and implement an effective program you must have clear answers to these, and perhaps other, questions. Having a clear picture of what you want to accomplish will help you to identify the key stakeholders--those individuals or groups who will be most affected by the new program.

These stakeholders will undoubtedly include administrators, general and special education teachers, parents, and students. Teacher organizations may also be stakeholders. After these individuals are identified, you will want to ensure that you and they reach a shared understanding of the program intent. For example, if you are proposing a cooperative learning application you and the other stakeholders must develop a shared understanding of the intent of the program and what it entails. You may assume the program intent is to enhance academic performance of students with differing abilities while others may assume the primary purpose is to provide opportunities for social interaction. Although both outcomes may be possible through cooperative learning, if stakeholders have differing beliefs about the primary purposes they will approach planning quite differently. Because different understandings of the intent have different implications for the participants, it is important to clarify specific meanings for everyone involved.

Another reason for developing shared meanings is to ensure a common understanding of resource needs. The resources needed for social interaction in heterogeneous groups may center on teacher training and skill development and emphasize how to design structured social situations that involve cooperative strategies. The resources necessary for effective academic learning in cooperative groups will also include teacher training and skill development but will emphasize modification of instructional materials and the time that teachers will need for instructional modification or may require the purchase of specially designed curriculum materials.

Securing resources for planning. Program implementation requires resources as discussed above, but program planning also requires resources. The extent and type depend upon the scope and nature of the planning effort, but it is likely that some personnel, time, and space resources will be required. It may be possible to acquire planning resources without cost, or you may have to negotiate for specific funds to support the effort.

Remember that this is the first stage of resource negotiation. The discussion of resources at this stage is designed to solicit support for planning and developing the program, not implementing it.

Building relationships. Identification and establishment of relationships necessary to successful implementation must occur during the initial stages of program planning. You must make contacts, build support, and discover opposition for your program. You should strive to assess and solicit support from top administrators and from all other levels of stakeholders. As you establish these relationships you will have the opportunity to gather information about the context that may be useful to you as program planning proceeds. For instance, you might gain answers to questions such as these:

- How will the school be affected by the program?
- What are the norms of that school community?
- Who are the leaders? Who has authority or influence?
- Who has public relations ability?
- Who else has needed resources?
- How do others view the program?
- How do members of the school community react to innovation?

Establishing a planning structure. If your goal is to implement a program with schoolwide impact, forming a planning team or task force is the next activity. Planning teams that include a representative group of stakeholders are likely to assure that diverse perspectives are considered and the program has a broad base of support. The optimal size of such a team is relatively small (5-12 people) and members should be selected based on an analysis of the most affected role groups.

Assess needs and set goals. The final task in the initial planning stage is needs assessment and goal setting. This requires looking carefully at the program, whom it affects, and how they are affected.

Goal setting should derive from the assessment of needs. One of the most important questions to reconsider and clarify further at this point is, "What are our outcome goals?" This question may seem too basic for consideration, but it is essential. The previous examples of cooperative learning goals illustrated some of the confusion that may result when goals are not stated explicitly.

Stage 2: Planning for Implementation

The second stage requires systematically planning a course of action to achieve the desired program goals. Several tasks must be undertaken, including identifying and describing in detail the desired program outcomes, matching context and resources, designing implementation strategies derived from the program analysis, specifying program components, and establishing timelines.

Identifying and describing the ideal outcome. Describing the desired outcome rather than stating a problem is the primary focus at this stage. It is important to determine for whom the program is appropriate and establish criteria for selecting participants.

Determining which students will benefit directly from the program and for which students the program is appropriate are chief considerations as you develop a concrete description of the ideal outcome. Clarifying the appropriateness of the program for different students gives an indication of how many students will be served and thus assists in allocating appropriate amounts of teacher time and other resources. Similarly, knowing the categories of professionals for whom the program is appropriate assists in estimating the number of professionals who will be affected.

The final strategy for the planning and implementation stage is deciding on the criteria for selecting participants. Because it is often advisable to start new programs on a small-scale pilot basis, the selection of initial participants may determine the ultimate success or failure of the effort. Teams should delineate criteria for selecting professionals who have the attitudes and skills needed to participate effectively, to work collaboratively with colleagues and to help communicate about the pilot to others. These teams should also establish entry and exit criteria for students to be involved.

Selecting potential programs. Using the framework presented in Chapter 2, the planning teams should be able to identify a limited number of program models to examine more closely for possible selection.

Matching the context and resources. Establishing a new program requires the careful assessment and allocation of appropriate resources and may necessitate securing some resources from outside sources or through internal reallocation from other programs. No new program or instructional change can be realized without resources. For all school personnel, the problem of creating time for planning is critical, but it may be manageable with appropriate administrative support. Provisions for noninstructional time in teachers' schedules may be achieved by developing creative approaches to scheduling (e.g., grouping more students together for some periods, shortening all instructional periods to provide an additional planning period).

The second critical resource is financial support. Each of the program summaries in this guide describes the costs associated with the implementation of specific programs. Invariably there will be some costs for teacher education but other costs such as those associated with acquiring materials, release time for teachers to attend training and to plan, or the addition of staff are also described in the individual summaries.

The presence or absence of local resources ultimately act as opportunities or constraints for your program and influence the likelihood of achieving the ideal outcome you vision. The information you gathered when establishing initial relationships can now be used to assess the context and identify the resources. Specifically, you need to know what resources (e.g., time, money, administrative support) are available to assist you in achieving your goals.

Using a force field analysis procedure may be helpful as you conduct analyses of the resources needed for your program. Lewin (1951) proposed that every situation and every proposal for change is subject to two opposing sets of forces: facilitating and restraining forces. Facilitating forces support and encourage changes and program implementation; restraining forces resist implementing new programs and obstruct change. We suggest you use a variation of this approach to identify how each of the following five resources may facilitate (an opportunity) the successful implementation of a program or impede (a barrier) its success: time, space, administration, skills, and attitudes. For example, a potential time barrier to the implementation of a teacher support team program could be that teachers are already overloaded with extra curricular activities and committee responsibilities. An opportunity would be that teaching and administrative staff are committed to the establishment of a support team and are willing to consider rescheduling of activities and consolidation of existing committee responsibilities. We encourage you to carefully consider each resource and determine how existing conditions will facilitate or impede your efforts to implement a new program.

Designing implementation strategies. After analyzing barriers and opportunities, you can begin to reformulate your previously specified ideal outcome and make decisions about the most feasible structural, material, and procedural parameters for your program. In designing the program and developing a plan for implementing it, you should consider and select the implementation strategies that offer the most promise for achieving the ideal outcome in your context. This will require you and your planning team to adapt the implementation model you originally envisioned so that it is appropriate for your particular setting. Adapting programs and implementation strategies to the ecology of the school is essential because the sense of ownership and commitment that develops during the adaptation process is critical to the success of these endeavors (e.g., Berman & McLaughlin, 1978; Phillips & McCullough, 1990).

There are as many variations in implementation strategies as there are different schools, personnel, and communities. The critical issue is that team participation in deliberately structured brainstorming activities may result in creative strategies for turning barriers into opportunities.

Establishing timelines. A timeline for program implementation and timelines for the development of program components enhance planning and effective implementation. Timelines should allow adequate time for preparation, development, implementation, and evaluation. By developing timelines you help to further clarify goals and communicate realistic expectations for the program. An overly ambitious timeline causes frustration and stress. Timelines should be realistic enough to allow for inevitable delays and adaptations and demonstration of a program's success before attempts are made to expand the program.

Stage 3: Preparing for Implementation

Creating awareness. In their Concerns-Based Adoption Model (CBAM), Hall and Hord (1987), describe the stages of feelings school personnel experience as they learn about, plan for, use, and subsequently modify new practices. According to this model, when individuals are first confronted with the possibility of changing their practices or roles they are likely to have very self-oriented concerns: What is the new practice? What will it mean to me? What do I have to do? Only after the concerns of a self- oriented nature are resolved do individuals progress to other concerns such as managing the new practice (How do I implement it effectively?) or about its effect on students (how is this influencing students?).

The CBAM model suggests that preparing for implementation requires using strategies that respond to the levels of concerns of the persons to be affected by the program and the change in practice the new program entails.

Because the first level of concern is typically self-oriented, initial preparation of teachers should focus on providing them with introductory information and increasing their awareness. This may involve sharing information in meetings or preparing brief written material. Some schools have used staff meetings, grade level meetings, or small group briefings to familiarize personnel with new programs. Vehicles for written information include school bulletins and other routine communication strategies. Any of these various mechanisms may be used effectively to share necessary overview information, but the emphasis should be on brevity since personnel are not likely to want detailed information, procedures, or skill development in these beginning stages. They are more likely to want to know how they will be affected by the program. The program summaries presented in Chapter 4 were designed to facilitate communication at this level. After reviewing abbreviated information such as these, discussion periods are particularly beneficial.

Selecting implementors. When describing ideal outcomes in an earlier planning stage you should have established criteria for selecting participants. Now as you prepare to implement the program you apply those criteria to identify the personnel and students you will involve. As we noted in Chapter 1, efforts to mandate implementation can kill the program. We recommend selecting implementors from among those who volunteer to participate. Care should be taken, however, to avoid any divisions that may emerge between implementors and non-implementors on your staff. Voluntariness enhances participants' commitment to a program.

Setting expectations. Whether your program is a pilot for a schoolwide program or a smaller one, such as a grade level pilot project, it will require clearly established and articulated expectations for the effort and its participants. Administrators play a key role in this and should be aware of and involved in the program. For larger programs, formal administrative support and participation is strongly advocated. The importance of administrative involvement was underscored in Chapter 1.

Making logistical arrangements. Although earlier stages required assessing and beginning to seek needed resources and materials, obtaining such resources and materials and arranging for their use is a significant step in preparing for implementation. Logistical arrangements may involve arranging for necessary training for staff, allocating rooms and other space, selecting and ordering materials and equipment, and otherwise arranging for the smooth implementation of the program. A useful product to develop at this stage is a procedural guide that can be followed by everyone who will be involved in program implementation.

Training personnel. When implementors are receiving skill-based training, many others in the school or district probably still require awareness training and basic information. One important consideration for pilot programs is to plan for dissemination and expansion during subsequent semesters or years. If you plan to have the pilot implementors involved in disseminating and expanding the project in the future you may wish to incorporate the skills they will need for these activities (dissemination and program expansion) into the training already planned for the implementation stage.

Designing an evaluation plan. Determining whether a program is successful requires the assessment of many variables. There is value in assessing variables to indicate the project's outcome as well as those indicating the satisfaction of individuals affected by the project. Your evaluation plan should, of course, be designed around the goals set for the program. Depending on the nature of the project, evaluation might include systematic assessment of program effectiveness indicators such as student achievement data, the number of referrals for other services, the satisfaction of personnel, parents, and students with the program. Cost efficiency (time, financial resources, number of students served versus benefits for students, teachers, and parents) should be ultimately examined. Standard evaluation practices should be employed for evaluating a small scale, pilot, or districtwide program.

Stage 4: Implementing the Program

The fact that this section on implementation is the briefest thus far in this chapter illustrates the importance of the initial planning activities. At this point of implementation, the strategies designed earlier, the training provided, and the logistical arrangements all come together for the smooth implementation of a well planned program. The major tasks of this stage are staff development and evaluation.

Expanding professional development activities. Once implementors have progressed beyond their initially self-oriented concerns, their concerns begin to focus on management issues. They become seriously concerned with learning how to effectively implement the new program and how to acquire the skills they need to be successful. Professional development activities are essential as we discovered in our site visits.

Carrying out program activities. This task varies significantly based on the specific program you and your planning groups have decided to implement. Some of the programs described in this guide will require major changes in the roles and responsibilities of those involved; others will involve minimal changes. Regardless of the magnitude of the changes required, your careful efforts in the initial planning stages will pay off and become evident as you carry out program activities.

Evaluating the program. At this point you will simply implement the evaluation design that was developed in the previous stage. Both formative and summative evaluation strategies should be used.

Stage 5: Maintaining the Program

Refining the program. Reviewing your evaluation data should assist you and the planning team to review progress and identify both the problems and the strengths of program implementation. This review should provide indications of possible changes and identify the strengths that should not be modified. Based on these results and their interpretations, a team or steering group should be able to make recommendations for program refinement and continuation. Of course, these data could indicate that the program is not successful and that it should be terminated.

Planning for and providing support. Assuming that program refinements can be successfully designed and implemented, the next and final task is to plan for and support ongoing maintenance of the program. Timelines, awareness, logistics, assessing the context, and all of the other tasks need to be reconsidered and possibly re-executed if you are to maintain and expand a program. Administrative support that facilitated development at earlier stages becomes particularly critical at this point. Administrators or others with leadership skills should take responsibility for troubleshooting and helping to obtain needed resources to ensure program continuation.

Whether you are planning a small-scale activity or designing a pilot for a schoolwide program, you are promoting change. For that change to be accepted and perhaps even welcomed, you must carefully plan for the changes that will occur.

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CHAPTER 4

PROGRAM SUMMARIES

The pages within this chapter contain summary information for sixteen educational programs that have potential for facilitating your efforts to integrate students with special needs. The programs we selected and feature in this Chapter were chosen as good examples from an array of program types and approaches that are available to you. They are by no means the only programs you should consider.

For each program we have included two different levels of information. First, the page behind each program divider contains a one-page "brief," summary of the program. The brief contains the following information: a general description of the program, a description of the population for whom the program was designed, implementation considerations, a summary of efforts to determine program effectiveness, and costs associated with program implementation. After reading the brief for the program(s) in which you are interested you may decide that the program is one you want to consider further. If so, you can turn to the in-depth summary, the second level of information, where you will find detailed information about the program.

Our goal is to provide sufficient program information in the brief to enable you to decide if the program fits your goals for integration and whether or not you want to consider the program further. If you do want to pursue it, you can contact the person(s) or institution listed at the end of each summary to arrange for additional information, to identify locations where the program is being used and contact persons for those sites, and/or to arrange for training.

Please note that we do not intend that you be able to implement a particular program simply by reading the summary. Rather, our intention is to provide you with an overview of a program such that you can make an informed decision about whether or not you want to use it. In order to implement the program you will need to obtain additional information and training from individuals involved with the program.

Information contained in the summaries was compiled from several sources. First, we conducted a review of the literature for each program and then met with each program's developer and selected users of the program to discuss the program's development, intended outcomes, and implementation criteria. Next, we traveled to schools and districts where the program was being used to talk with individuals who were implementing the program (i.e., teachers, principals, support personnel, students, parents, and district-level administrators) and to observe the program "in action." Throughout the summaries we have included comments that reflect the perspectives of those we interviewed. We typically cite these comments as being from "individuals/teachers/administrators/etc. who have used the program." Additionally, in some instances we have included our own observations and perspectives of the program based on our site visits.

We encourage you to share the information contained in this product with your colleagues. You have permission to copy the program summaries to assist you in involving multiple persons in the review and consideration/selection process. We also encourage you to add information about other programs you may identify.

To assist you in reveiwing the in-depth summaries we have included an outline of the summary format on the following page. Each summary follows this outline.

PROGRAM SUMMARY FORMAT

I. INTRODUCTION

A. Purpose and Goals
B. Contribution to Mainstreaming
C. Development and Foundation
D. Key Principles Upons Which the Program is Based

II. PROGRAM DESCRIPTION

III. PROGRAM IMPLEMENTATION

A. The Program in Action
B. Participant Roles
  1. Students
  2. Teachers
  3. Administrators
  4. Parents/Community
C. Implementation Requirements
  1. Planning
  2. Training
  3. Staffing
  4. Facilities
  5. Curriculum, Equipment, Materials, and Supplies
  6. Classroom Arrangement
  7. School and District Organization

IV. MONITORING IMPLEMENTATION

A. Student, Classroom, and Building-Level Outcomes
B. Overall Program Implementation

V. EVIDENCE OF PROGRAM EFFECTIVENESS

VI. SOURCES OF ADDITIONAL INFORMATION

VII. REFERENCES

HIGH/SCOPE CURRICULUM

Developed by David Weikart

General Description: The High/Scope Curriculum is a cognitively-oriented early childhood program that uses the concept that educational activities should be attuned to each child's level of development. It enables teachers to use many types of open-ended, commercial and noncommercial materials to focus on children's strengths and engage children in direct experiences that enhance social and emotional learning. Though the K-3 program can be used with most of the new basal K-3 texts, much of the existing curricula will have to be replaced. The curriculum revolves around the provision of key experiences designed to give teachers an awareness of the basic intellectual processes and contents with which any activity can be enriched and extended. The key experiences are considered central to children's development and should be integrated in any learning activity. The classroom setting is filled with developmentally appropriate materials and activities that children can manipulate and explore, and there is a sharing of control between students and teachers that provides a balance between freedom and structure. The diverse individual needs of children can be met in the same classroom.

Target Population: Children of all levels of academic achievement from preschool through grade 3, including those with all types of disabilities.

Implementation Considerations: Administrators, especially principals, should be trained along with the general and special education teachers. They must support the teachers' willingness to move from traditional approaches. The teacher's fundamental role is to assist the child's natural process of inquiry. Teachers must be well informed about the growth and development of children, arrange the room to promote active learning, make plans and review activities with the children, interact with and carefully observe individual children, and lead small- and large-group learning experiences. A full-time aide is recommended for each classroom. Parents are encouraged to be involved in their child's learning, and when applied in special education settings, there is a special emphasis on family-focused interventions.

Program Effectiveness: The High/Scope Curriculum has evolved over the past 25 years through practices in a variety of private and public school settings. Studies of participants in the original preschool program that used the precursor to the High/Scope curriculum indicate that participants are less likely than nonparticipants to be school dropouts, arrested, or enrolled in welfare programs. Comparative studies of children in High/Scope classrooms and traditional British classrooms indicate that High/Scope children were more actively involved in their own learning, were engaged in more sophisticated play sequences, and played for longer periods of time.

Costs: Curriculum guides (at $22 each in 1991) and a wide variety of related products and materials can be purchased from the High/Scope Foundation. Teachers typically need four days of initial training, and 4-10 days of follow up training during the first year. In 1991, the Foundation offered a number of training options, i.e., one- or two-day workshops at the Foundation($160-$240), introductory on-site two-day workshops ($75-$115), week-long Teacher Institutes ($300-$380), Trainer Preparation programs ($6000), and nine-month graduate-level degree programs ($3500).

HIGH/SCOPE CURRICULUM
Developed by David Weikart

I. INTRODUCTION

The High/Scope Curriculum is a cognitively-oriented educational program that seeks to provide broad, realistic educational experiences for children as they progress from preschool through the primary grades. At the heart of the Curriculum is the concept that educational activities should be attuned to each child's level of development. Its Piagetian-based curriculum is geared to the child's current stage of development in order to promote the spontaneous and constructive processes of learning, and to broaden the child's emerging intellectual and social skills. Active, generative, and problem-focused learning is encouraged in open-framework classes, as opposed to the passive, remote learning that often takes place in more traditional instructional approaches. Children become actively engaged in the learning process--exploring materials of interest in a self-directed manner, initiating activities, and taking responsibility for their outcomes (Wallgren, Hohmann, Buckleitner, Maehr, Schweinhart, & Blackwell, 1989, p.1).

Work on the High/Scope Curriculum began in 1962 with the Ypsilanti (MI) High/Scope Perry Preschool Project. The curriculum used originally in that project has evolved to effectively combine sound educational theory with developmentally appropriate classroom experiences to meet the needs of teachers and children in preschool and K-3 classrooms. The Curriculum assists teachers in providing activities and materials which will challenge students' abilities and encourage them to develop and pursue their own interests, talents, and goals.

The High/Scope Educational Research Foundation houses the program. This independent nonprofit organization, formally established in 1970 by Dr. David Wiekart, focuses on the learning and development of children from infancy through adolescence, with a special focus on the early childhood years.

A. Purpose and Goals of High/Scope Curriculum

The purpose of the High/Scope Curriculum is to develop in children a broad range of skills, including the problem solving, interpersonal, and communication skills that are essential for successful living in a rapidly changing society. Since the starting point for instruction is each child's current level of performance, the diverse individual needs of children can be met in the same classroom.

The basic, long-range educational and developmental goals of the Curriculum, as stated by the High/Scope Foundation ("Young children in action", p.3), are to develop young children's:

- Ability to make decisions about what they are going to do and how they are going to do it.
- Self-discipline and their ability to identify personal goals so they can pursue and complete self-chosen tasks.
- Ability to work with other children and adults so that the work done is a result of group planning, cooperative effort, and shared leadership.
- Ability for self-expression--enabling them to speak, write, dramatize, and graphically represent their experiences and to communicate these experiences to others.
- Ability to apply their reasoning capability in a wide range of naturally occurring situations, using a variety of materials.
- Spirit of inquiry and of openness to knowledge and the points of view of other people.

B. Contribution to Mainstreaming

The High/Scope Curriculum is consistent with the view that certain disabilities are developmental delays, and when seen from this perspective, many of the needs of a child with a disability are not so abnormal because they often reflect the normal needs of an earlier development period. Since the Curriculum focuses on the child's strengths, adapting to the needs of special children is not a novel demand (Tompkins, 1990, p.131). A child's status along a developmental continuum may be identified and activities and experiences which will challenge and help the child may be implemented. For example, a four-year-old child who is two years behind his/her age peers intellectually and verbally may be provided with a variety of concrete experiences and language activities that would be provided for a non-disabled two-year-old. Hence, the High/Scope Curriculum can be an effective learning environment for many children with disabilities, especially those with mild disabilities (Hohmann, Banet, and Weikart, 1979, p. 16).

The High/Scope Curriculum also focuses on the qualities shared by all children at all levels, such as the need to: make choices, have consistency, have the freedom to play, and have opportunities for warm relationships with adults and other children. These universal needs may be neglected when teachers focus only on the "need to remediate" (Tompkins, 1990, pp. 131-132). Thus, the High/Scope Curriculum provides a framework that can serve as the basic tool for teachers working with all students, including those with disabilities, in integrated groups. It provides a learning environment that is both "least restrictive and facilitative" (Hohmann et al., 1979, pp. 16-19). At one site that was visited as part of the investigation of the High/Scope Curriculum, parents of students with and without disabilities stated that their children were being well-prepared socially and academically for future school experiences.

In an effort to further develop the usefulness of the curriculum for students with disabilities, High/Scope has incorporated the use of the Transactional Intervention Program (TRIP) into its program. TRIP was developed in the early 1980's by Gerald Mahoney and Amy Powell at the University of Michigan. It grew out of research in early childhood special education and was expanded in two demonstration projects funded by the U.S. Department of Education ("Implementing family-focused intervention," p. 3). TRIP's emphasis is on enabling caregivers and teachers to understand the nature of the role they play in children's development and maximizing their effectiveness in assuming this role, rather than on prescribing specific developmental activities. It encourages caregivers and teachers to engage in interactions that are not only appropriate to children's level of language, cognitive, social, and emotional development, but that are also balanced, responsive, and congruent with children's ongoing activities and interests (Powell & Mahoney, 1986, p. 4). TRIP provides an increased level of specificity to teacher-child interactive strategies and includes methods for analyzing interactions and a developmental profile that is used in developing Individual Education Plans (Powell & Mahoney, 1986, pp. 7-13).

C. Development and Foundation

The High/Scope Curriculum applies the insights of child development studies to the problem of understanding and supporting the educational process of children in early elementary grades. It has roots in the early 1960s in the efforts of David Weikart and others to develop a curriculum for the High/Scope Perry Preschool Project, an experimental program designed to address the needs of disadvantaged children for an educational preschool. The preschool curriculum for that experimental project provided an organized educational program directed at the intellectual and social development of young children. It consisted of two components: (1) a half day in the preschool classroom and (2) home visits of approximately one-and-a-half hours every other week to involve the mothers in the active development of their children. During the first years of operation, the curriculum was an adaptation of a traditional preschool curriculum. The adaptations were designed to be responsive to the needs of children from low-income families where there was a lack of language and intellectual stimulation. The classroom environment was organized to encourage active play and to stimulate thinking and language about categories, seriation, ordering, temporal relations, and other types of classifications. It became a curriculum organized around play areas and time periods in which teachers interacted with the children to encourage the development of concepts and language associated with such cognitive ideas as large and small. The use of play as a medium for intellectual development was further strengthened by adoption of the research of Smilansky (1971), who demonstrated the links between play and the development of intelligence. At this time the primary focus of the curriculum was the attempt to positively alter the intellectual capabilities of the children. The positive results of the instruction were readily seen in the significant gains the children showed on a variety of standardized tests of intellectual functioning during and after their preschool years.

During the middle and later years, the curriculum was influenced by Piagetian concepts that were translated to emphasize active learning and cognitive stimulation (Piaget, 1969). The curriculum specifically incorporates the general Piagetian idea that education should be in accord with the child's particular stage of development as well as his or her spontaneous processes of learning. The developmental framework initially constructed by Piaget, and revised and elaborated upon by others, remains a solid psychological framework for achieving an understanding of children's mental processes in a wide range of areas important to school achievement, including mathematics, science, music, language, and social-emotional development. Perhaps more important, the

High/Scope Curriculum embodies the Deweyan-Piagetian view that genuine progress in learning and development will not occur unless children are actively involved in the process. In addition, the Curriculum takes a distinctly cognitive view of intellectual functioning by giving a central role to such topics as mind, thinking, or imagination and such concepts as plans, desires, or intentions. Thus, the High/Scope Curriculum falls squarely within the cognitive-developmental educational tradition (Wallgren et al, 1989, pp. 4-5).

Following the Perry Preschool Project the curriculum was formalized into the High/Scope Curriculum and was studied in a curriculum comparison project in which it was compared with a traditional preschool curriculum and a language oriented curriculum. The High/Scope Curriculum was also further developed during the late 60's and 70's into a Head Start Variation program and a Follow-Through program. In the middle 70's, the curriculum was adapted to be used as a mainstreaming preschool program for children with disabilities as a part of the Handicapped Children's Early Education Program (HCEEP). It was used as both a demonstration project and outreach site. During this time the curriculum evolved to further its focus on developmental strengths of children rather than on their "deficits." This developmental educational approach was expanded through the use of a "plan-do-review" sequence. This curriculum modification fit nicely with the earlier Piagetian focus on temporal relations; it also emphasized active, child oriented learning.

Also in the early 70's, curriculum developers focused on revising the Piagetian-based preschool approach to suit the needs of K-3 teachers and children in public school settings. They struggled with a variety of issues, e.g., how to incorporate the principles of child-initiated learning in a K-3 classroom setting, how to encourage children to make choices and decisions, how to establish a consistent daily routine, how to set up and stock classroom interest centers, how to staff classrooms, and how to encourage productive communication among teachers and children. However, widescale K-3 curriculum development and dissemination efforts were reduced in the early 80's when federal resources for Follow Through and other education programs and evaluations were severely cut back (Wallgren, 1990, pp. 5-7).

During the late 70's and 80's, the High/Scope Curriculum, as it has come to be known, added a social development focus and an emphasis on conversational interactions between teachers and children. The later was a natural outgrowth of the earlier focus on high levels of interactions between teachers and children surrounding play activities, but the former was a significant addition to the earlier primary emphasis on cognition. This, however, can be seen as a part of the move toward developmental education with its emphasis on the whole child. During much of the 80's, the emphasis has been placed on the development of training and training materials for practitioners interested in learning how to implement the High/Scope Curriculum. In 1985 the High/Scope Foundation formalized its training of trainers format and is now actively engaged in training curriculum trainers in all parts of the country and in many foreign nations.

In the mid-1980's, the High/Scope Foundation received numerous inquiries about the K-3 program from agencies that were successfully implementing the High/Scope Curriculum. These agencies wanted to know what they should be doing at the kindergarten level to support and extend the positive, developmentally appropriate educational experiences that the preschoolers are having. The High/Scope Foundation was concerned that if it reacted to these requests by couching the kindergarten strategies in the language of the preschool community, the public school sector would not accept them. In addition, it felt that addressing kindergarten with no regard for grades 1-3 would be only a stop-gap measure.

In 1988, the National Follow Through program "regrouped" and redirected its energies and resources to establishing sites around the country that could demonstrate proven, developmentally appropriate practices in grades K-3. This new thrust, which was supported by federal and private resources, enabled the refinement and expansion of the High/Scope K-3 Curriculum. High/Scope's three Follow Through demonstration sites provide ongoing field testing of K-3 curriculum guides for teaching science, mathematics, and language. Guides and related materials (including teacher-training videos) for these three areas are currently available (Wallgren, 1990, pp. 7-9). As noted previously, the High/Scope Foundation also turned its attention more specifically to the needs of children with disabilities by incorporating the Transactional Intervention Program into the High/Scope Curriculum.

D. Key Principles Upon Which High/Scope Curriculum is Based

The High/Scope Curriculum is based on the following key principles:

- Young children's logical thinking and their ability to represent the environment develop as they learn actively; i.e., as they interact with their environment, discover for themselves the relationships among objects and events, group events and objects in logical order, and discuss their findings and experiences (Wallgren, 1990,p. 6).
- The classroom setting should be filled with developmentally appropriate materials and activities which children can manipulate and explore.
- There should be a sharing of control between students and teachers to provide a balance between freedom and structure.
- Students should be encouraged to make plans, solve problems, and review their work in order to bring about the understanding that they are competent human beings capable of making decisions and following them through.
- Parents should be involved in their child's learning through group meetings, workshops, and individual conferences.

II. HIGH/SCOPE CURRICULUM DESCRIPTION

The High/Scope Curriculum emphasizes a developmentally appropriate curriculum, which in turn emphasizes active learning in which the child's preferred interaction with the world is through direct sensory experiences. Active learning occurs when children are provided with a variety of materials and have opportunities to manipulate them; when children are encouraged to initiate activities, make choices, and talk about what they are doing with their peers and teachers; and when teachers provide supportive comments and suggestions that encourage and motivate students to think through and elaborate on their plans (Buckleitner, 1989, p. 6).

Since manipulation and movement become the principle vehicles by which children form concepts and ideas, the High/Scope Curriculum requires a rich learning environment that encourages children to work with a variety of manipulative materials, to formulate practical problems, and to make thoughtful efforts to solve them. To facilitate this active learning process, the High/Scope Curriculum provides developmentally sequenced guidelines called Key Experiences. Teachers include these experiences in their daily planning and teaching to foster learning that is appropriate to each child's developmental level.

The High/Scope Curriculum attempts to assure a sharing of control between students and teachers in order to provide a needed balance between freedom and structure in the classroom. As the program moves into higher grades, there is a greater emphasis on teacher-directed activities than on student-directed activities. The Curriculum encourages student initiative by providing children with materials, equipment, and time to pursue activities they choose. At the same time, it provides teachers with a framework for guiding children's independent activities toward sequenced learning goals. Based on observations of individual students, the teacher adjusts the teaching strategies as necessary to encourage children's active problem solving and to implement action-oriented learning processes. This teacher-student interaction (i.e., teachers helping students achieve developmentally sequenced learning goals while also encouraging them to set many of their own goals) uniquely distinguishes the High/Scope Curriculum from child-centered curricula (Wallgren et al., 1989, p. 3).

In a child-centered classroom approach, learning initiatives come only from the children. The High/Scope Curriculum, on the other hand, uses a plan-do-review sequence to encourage learning initiatives from both students and teachers. This sequence facilitates the active participation of children in choosing, organizing, and evaluating learning activities. Teachers participate actively by arranging the room to promote the children's active learning, by making plans and reviewing activities with the children, by interacting with and carefully observing individual children, and by leading small- and large-group learning experiences.

Finally, the High/Scope Curriculum views learning as a social undertaking that involves the participation and involvement of the entire class. Thus, the curriculum approach encourages the help and cooperation of both students and teachers in supporting individual development (Wallgren et al., 1989, p. 2).

The High/Scope Curriculum is further described below in terms of its: (a) daily routine; (b) activity periods (the plan-do-review sequence); (c) math and language workshops; (d) curricular areas; and (e) key experiences.

A. The Daily Routine

The High/Scope Curriculum is designed for a full-school-year program (approximately 180 full days). The classroom routine, planned to fit a typical full-day program, is designed to be managed by one teacher with approximately 25 children (half-day kindergarten programs are also supported in the curriculum). Some modifications to traditional classroom arrangements are required (see Section III.C.6).

The child's daily routine provides a balance of large-group or circle activities, small-group workshops, and independent (and self-directed) work in activity centers organized by the plan-do-review process. Large- and small-group times lend themselves to the introduction of new materials or presentation of developmentally appropriate concepts and skills in specific academic areas. Large-group times can also be used for drama, movement and music, games, classroom project presentations, reviewing and sharing, general meetings, and announcements. In the plan-do-review process, children undertake self-directed projects based on their own interests and the materials and equipment available in the activity centers (Wallgren et al., 1989, pp. 9-10).

Each teacher determines the number and types of centers in his/her classroom based on such considerations as the grade level, special needs, and interests of the children (Morrison, 1988, p. 129). For example, a kindergarten classroom in one school that was visited had centers for computer usage, books, numbers, writing, housekeeping, blocks, and painting; whereas, the third grade classroom had centers for computer usage, listening, geography, writing, science, math, and art. Each High/Scope classroom should have a computer center since the High/Scope Curriculum integrates computers and developmentally appropriate software to support its active, child-initiated learning emphasis and to supplement the teacher's instruction in basic skill areas.

Though all of these key elements are reflected in each day's schedule, the High/Scope Curriculum does not prescribe a specific order for their occurrence. Rather, specific daily classroom schedules reflect the needs and preferences of individual teachers and the scheduling requirements of individual schools. It is important, however, to preserve daily math and language workshops and plan-do-review sessions as unbroken units by scheduling them around daily activities that either occur outside the classroom or involve a special teacher, e.g., lunch, physical education, recess, music, art, and special education (Wallgren et al., 1989, p. 11).

B. Activity Periods: The Plan-Do-Review Sequence

Activity periods are key blocks of time in the daily routine during which children work through the plan-do-review process. This process is a sequence in which children: (1) with the help of the teacher, initiate plans for projects or activities; (2) go to learning centers to implement their plans; and (3) review what they have done with the teacher and their fellow classmates in some form (e.g., presenting an oral or written report, a drawing, or a dramatization).

Plan-do-review best occupies a single unit of time between 45 and 60 minutes in length. Planning immediately precedes doing, which is immediately followed by reviewing (Wallgren et al., 1989, p. 12). Typically, children (usually over three years of age) spend 5-15 minutes making a commitment to what they are going to do before they do it (planning); spend about 50 minutes carrying out (doing) their plan, including the selection of materials and additional activities; and finally, spend 10-15 minutes reviewing what they did either by talking about it, or representing it in some other manner such as by drawing, imitating, or building (Buckleitner, 1989, p. 7).

The plan-do-review sequence provides children with choices and requires decision making. It also provides teachers with a structured framework within which to manage the activity period. Planning allows children to look ahead to the "what," "where," "when," "how," and perhaps the "why" of what they will be doing for the next hour. It may be as simple as an oral commitment to go to the listening center and listen to a song or story, or it may involve a written description of a project involving both art and math materials. Doing means action--working with materials, working with other children, choosing, creating, and sharing. Following each activity period, children "clean up" to restore materials to their places to prepare the room for the next day. Reviewing involves putting what one has done into words or pictures and sharing the representation with other children, teachers, or parents. Reviewing provides accountability to oneself, to the teacher, and to the other children. It provides answers to such questions as (Wallgren et al., 1989, pp. 11-12): What was planned? What was accomplished? What might be done differently next time?

C. Math and Language Workshops

Workshops are used in the K-3 program but not in the preschool program. These workshops are a means of harnessing the resources of the classroom computers, activity center, and teacher-led instruction for language and mathematics learning. During each workshop, the teacher works with a small group of children in specific math and language activities or on other small-group workshop activities. The children rotate among the computer center and the small-group workshop activities, either within the workshop period or on subsequent days. These workshops, each of which is scheduled for 50-60 minutes daily, include large-group time to introduce new concepts and materials or discuss a topic of interest to the whole group (Wallgren et al., 1989, pp. 12, 19, and 23).

D. The Curricular Areas

The High/Scope Curriculum is organized to develop the skills that are necessary to solve problems or create products, with particular significance on those skills that are functionally important in the modern world of today and of the foreseeable future (Wallgren et al., 1989, pp. 13-14). Thus, the High/Scope Curriculum incorporates seven primary curricular areas: Language, Mathematics, Science, Art, Music, Physical Education/Movement, and Social Skills.

The High/Scope Curriculum recognizes the dominant role of linguistic and logical-mathematical (including scientific) intelligences in modern life; therefore, major portions of each day are organized around instruction in language, mathematics, and science. However, the importance of the other "intelligences" is not diminished in the curriculum. The High/Scope Curriculum provides for the integration of these areas through scheduled activity periods and through the selection of appropriate instructional materials. For example, daily large-group meetings provide time for a variety of activities, including music, movement, and dance. Teachers may take up instruction in social skills during the course of each day, i.e., during cooperative activities in the small-group times and in the overall management of children's interactions with one another. Art activities take place in the classroom art center and are routinely incorporated into the language workshop. In addition, local school requirements usually provide specific time periods for physical education, music, and art during the week.

E. Key Experiences

The curriculum revolves around the provision of key experiences designed to give teachers an awareness of the basic intellectual processes and contents with which any activity can be enriched and extended. Key experiences are interrelated and are considered central to children's development. They should be integrated in any learning activity rather than occur independently of each other (Hohmann et al., 1979, p. 5). They are intended to be applied in many different kinds of learning activities across a range of developmental levels. Teachers do not control the learning situation, but look for opportunities to introduce the key experiences as they observe, work with, and respond to their students (Buckleitner, 1989, p. 12).

There are a total of 56 key experiences for the preschool program, which are organized as follows by categories and subcategories (the number of experiences in each category/subcategory is shown in parenthesis):

- Social and Emotional Development (9)
- Cognitive Development (39)
  - Representation (6)
  - Language (6)
  - Classification (7)
  - Seriation (3)
  - Number concepts (3)
  - Spatial Relations (8)
  - Time (6)
- Movement/Physical Development (8)

Unlike behavioral objectives, which are quite specific in scope and timing, these key experiences are general guidelines for encouraging age-appropriate learning activities. For example, two of the key experiences relevant to social and emotional development are: (1) making and expressing choices, plans, and decisions; and (2) expressing and understanding feelings.

For the K-3 program, the High/Scope Curriculum has key experiences in mathematics, science, and language and literacy. (Experiences in the areas of music and movement, fine arts, and social studies are being actively pursued but they are not yet ready for release.) Each K-3 key experience has a detailed sequence of developmental milestones that can serve as a teacher's guide for assessing children's developmental progress and planning appropriate activities, as well as to help teachers recognize and encourage important processes of discovery as they work directly with children. These key experiences and developmental sequences are not meant to prescribe rigidly defined curriculum sequences. Because public school settings use grade-level systems, the K-3 experiences have been organized in developmental chart form under particular levels that indicate when a particular capacity first appears (Wallgren, 1990, pp.8-9). For example, one of the six key experiences for science is: "Observing, Predicting, and Controlling Change: Understanding Causality." The developmental milestones for this key experience are presented in three levels (an example of a developmental milestone is listed below for each level; typically there are three or four milestones per level):

- Level 1--Preoperations: Intuitive Thinking
    - Manipulates physical objects (toys, apparatus, equipment) to produce an effect or change (blows out a candle).
- Level 2--Early concrete operations
    - Observes and describes a pattern of change in events and movements (life cycles, cycles of motion, weather changes).
- Level 3--Late concrete operations
    - Recognizes that a sequence of change (winding up a toy car to make it go) involves a sequence of causes and effects (winding the key on the car activates motion in a series of gears, eventually resulting in the motion of the car).

These levels are not meant to suggest a defined learning goal that must be completed at a particular point. Rather, it is assumed that all the processes emerging at particular levels will continue to be used in different and more sophisticated contexts (Wallgren, 1990, pp. 8-9).

The mathematics program has a total of six key experiences that cover (Hokmann, 1991, pp. 236-239):

- Operations on collections of objects.
- Number and numerical operations.

- Geometry and space.
- Measurement of continuous quantity.
- Movement, time, and speed.
- Language, symbols, and graphing.

There are a total of 101 developmental milestones for these experiences.

The language and literacy program has the following three key experiences: in a language-rich environment where purposeful and supportive communication and use of print resources and children's literature predominate, children shall be (1) speaking and listening, (2) writing, and (3) reading (Maehr, 1991, p. 67). A total of 25 developmental milestones are specified for these experiences.

III. HIGH/SCOPE CURRICULUM IMPLEMENTATION

A. High Scope Curriculum In Action

The plan-do-review sessions and the math, language, and science workshops are critical components of the K-3 High/Scope Curriculum. This section describes what one might observe in the plan-do-review and language workshop and in a second-grade class of 25 students.

Miss Smith rang a small "desk bell" to bring her students together after their return from lunch. At the sound of the bell, the students moved to a corner of the room and sat on the floor. Miss Smith reviewed what the students were expected to pursue in each of the four workshop activities scheduled for that day, i.e., reading, language arts, following directions, and computerized reading and writing instruction. (The students had been separated into four heterogeneous groups especially for the workshops and plan-do-review sessions.) She also described the pattern for cycling each of the four groups through the four activities so that each group would spend approximately 15 minutes on each of the activities. Following the introduction, Miss Smith asked the students if they had any questions about the procedures and planned activities. They had none, so she rang the bell to signal the beginning of the first activity. The students responded by moving enthusiastically to appropriate work areas or centers. Within a few minutes, all of the students were involved in a range of independent or small group activities. The teacher and her aide moved throughout the classroom to see what each student was doing and to talk with him/her about it.

Susan, one of the students in the computerized writing group, proudly showed Miss Smith the following story that she had written.

THE RAINY DAY

> *TODAY IS THE RINYEST DAY OF MY LIFE!IT IS A TORENATO WATCH AND A FLOOD WATCH TOO! I DON'T LIKE IT WHEN IT RAIN SO HAERD ! I DON'T HAVE EANNY THING TO DO WHEN WE DON'T HAVE SCHOOL ALL I HAVE TO DO IS TO FOLD CLOSTH & WASH DEISHISE TOO!!I GET MY SLEIVS WET IT IS NOT FUN AT ALL THE END BY SUSAN*

Miss Smith read the story (overlooking the spelling and punctuation errors), complimented Susan on her creativity, and questioned her about what she and her mother had planned to do if they saw or heard a tornado. (According to the teacher, the students write so much more when they do not have to worry about spelling and punctuation.) When Miss Smith moved on to another student, Susan enhanced her story with a couple of sentences about what she and her mother had planned to do if they saw or heard a tornado (they planned to take shelter in the bathroom). She then prepared a title page, used the computer to dress it up with a fancy border, and stapled the two pages together as a "take home" package for her parents.

After about 15 minutes, Miss Smith rang the bell to signal that it was time to rotate to the next activity. The students quickly finished up what they were doing and, with a little prompting from the teacher and aide, tidied up their work area and moved on to the next activity area. After all four groups had rotated through all four activities, Miss Smith rang the bell to bring the four groups together in order to give individual students an opportunity to share the stories that they had written or read during the period. All of the students sat on the floor in a corner of the room. The student doing the sharing stood and faced the group. After about ten minutes of "sharing," Miss Smith closed out the workshop period by giving a brief overview of the activities planned for tomorrow's workshop. (All students do not "share" each day.)

Miss Smith made a direct transition from the language workshop to the plan-do-review by asking the students in group 1 to stand up and tell the class what they planned to work on during the "do" period. "Finish reading my book," said Tom. "Play the 'mystery game' (on the computer)," said Jean. "Play with my puppets," said Bill. Mary indicated her plans by simply pointing to the Listening Center. When all of the students in group 1 had indicated their plans, they sat down and the process was repeated for groups 2, 3, and 4. The students' plans were recorded by the teacher.

After all the students had verbally stated (or indicated) their plans, Miss Smith rang the bell to signal the beginning of the "do" or work period. The students quickly moved to their respective work areas or learning centers. They were very active and had complete freedom of choice (students may change their plans during the period, provided they discuss the change with the teacher or aide). They were dancing, reading books, playing with puppets, playing with toy trucks, etc. The Computer Center was particularly popular, with a lot of interest in an electronic crayon program that enables them to do some creative coloring and draw fancy borders on their papers. Two or three students often worked together on an activity, e.g., playing one of the many educational computer games that were available in the Computer Center. They were good about sharing the materials and resources. Miss Smith and her aide moved about the classroom and played an active role in encouraging and extending the student's ideas and efforts--but they did not direct or lead the students.

After 30 minutes, Miss Smith signaled (with the small bell) that it was time to clean up and prepare to share (review) their experiences. The children quickly stopped what they were doing and began cleaning up their work areas and placing materials and manipulatives in their proper storage areas. After a few minutes, the teacher counted down from 5 to 0 to get the students together for "share" time. Though the group was quite noisy in the "do" part, they settled down quickly when the teacher rang the bell to signal that it was time for "sharing. At the count of "0" they were sitting on the floor as an orderly group. (Miss Smith managed the classroom well, especially with respect to controlling changes in tempo and the rotation to learning centers.)

The students were eager to share their experiences (which is always done verbally) - - raising their arms above their heads and enthusiastically waving them to get the teacher's attention. Despite their excitement at the possibility of being called upon "to share," they were attentive and considerate when their peers were sharing. The sharers enthusiastically talked about and displayed what they had done. The teacher was active, and quite adept, at "drawing out" and highlighting each student's specific accomplishments and learning experiences. One student, after sharing his story, was excused to share his story with a kindergarten class. About one-half of the students shared their experiences.

B. Participant Roles

1. Students

Students become actively engaged in the learning process, exploring materials of interest in a self-directed manner, initiating activities, and taking responsibility for their outcomes. The plan-do-review process forces students to engage in productive decision-making and problem-solving activities by requiring them to plan an activity, carry out that activity, and then review their work.

2. Teachers

Teachers maintain an active role in the High/Scope Curriculum by arranging the room to promote the children's active learning, by making plans and reviewing activities with children, by interacting with and carefully observing individual children, and by leading small- and large-group learning experiences. They must continually gauge each child's developmental status and present intellectual challenges intended to stretch the child's awareness and understanding of the process of inquiry. The teacher's fundamental role is to assist the natural process of inquiry (Wallgren et al., 1989, pp. 1-2). To fulfill this role, teachers must be well informed about each child's growth and development, must be able to recognize individual differences in their students, and must be willing to use instructional methods and materials that support child-initiated learning.

Administrators at one visited site stated that High/Scope teachers must be committed to putting in extra time for training, assessing, and planning. (Teachers in this site said that although they spend more time in planning in the High/Scope classroom than they did in a traditional classroom, they spend less time in grading papers.) Teachers must let go of the "I am in charge" attitude and act as facilitators and allow students to make a lot of choices on their own. Strong, "teacher directed" teachers can become flexible through the High/Scope Curriculum, but "laisez-faire" teachers do not make good High/Scope teachers. Teachers who embrace the High/Scope Curriculum are much more interested in what children can do and how they do it than in what they cannot do.

3. Administrators

The High/Scope Foundation recommends that administrators, especially principals, be trained along with general and special education teachers. Administrators play a monitoring role in the implementation of the Curriculum, and their support is

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important for smooth implementations. They should provide release time for training when appropriate with district policies. Staff in visited districts emphasized the importance of principals accepting and supporting their teachers' willingness to move from traditional approaches. To support administrators, the High/Scope Foundation publishes A School Administrators Guide to Early Childhood Programs.

4. Parents/Community

Meaningful parent involvement is actively encouraged in the High/Scope Curriculum. Program developers recommend four types of key experiences for parents (Hohmann et al., 1979): (a) discovering that parenting is teaching; (b) contributing to the classroom program; (c) planning and participating in parent-staff meetings; and (d) learning about child development and the Curriculum. These key experiences for parents manifest themselves in many ways, such as parents accompanying students on field trips, contributing supplies such as plastic bottles or scrap paper, or organizing a cooking lesson for the students. Family-focused interventions for students with disabilities are emphasized in the training program.

C. Implementation Requirements

1. Planning

Planning for the implementation of the High/Scope Curriculum is similar to that of any "new program implementation" in that the individuals who will be involved (teachers, administrators, paraprofessionals, and parents) must be committed to the principles and objectives of the curriculum. In order to do this, it is necessary for educators to learn as much as possible about the Curriculum, and to relate what they are learning about the Curriculum to their own situation. It is also helpful to talk with High/Scope trainers and to observe a High/Scope classroom. The High/Scope foundation has a demonstration classroom in Ypsilanti, MI and hosts hundreds of observers each year.

The High/Scope Coordinator at a demonstration site for the K-3 program recommends that implementation of the program in a new school should (a) begin with teachers who volunteer to try the program, and (b) include at least one class at each grade level in order to provide continuity for the students as they matriculate. It is preferable to implement the full High/Scope Curriculum at the onset, but if necessary the program could be introduced in stages. For example, the writing process could be introduced first. As teachers see what the children do with the program in this area, they can move onto mathematics, science, etc.

2. Training

The High/Scope Foundation offers a number of training options to persons interested in implementing the High Scope Curriculum. These options are summarized below; shown in parenthesis for each option is the range for participant fees for the summer and fall of 1991 ("High/Scope Training," 1991).

- High scope workshops are one- and two-day co-sponsored events held throughout the year in different locations across the U.S. These workshops provide a good introduction to the basics of the High/Scope Curriculum in a short amount of time. ($160-$240)

- Teacher institutes are week-long events held at the Foundation headquarters in Ypsilanti, MI. The Institute explores the basic principles and strategies of the High/Scope Curriculum and includes opportunities for classroom observation. ($300-$380)

- Training of Teacher-Trainers Project is a seven-week training program that takes place over the course of a year. This option allows agencies to participate in comprehensive, cost-effective regional training. Successful completion of this program certifies participants to train others in the High/Scope Curriculum. ($6000)

- A nine-month graduate program in Education and Human Development may be coordinated with graduate level degree granting programs at institutions of higher education in Michigan and elsewhere. ($3500)

Program staff in at least one High/Scope demonstration site receive 14 days training per year. Four of these days are spent in formal training and "experience sharing" at a High/Scope workshop involving two other federally-funded Follow Through projects. The High/Scope trainer comes to the district five times each year for two-day training sessions. For each session, the trainer spends one day observing teachers in their classrooms and one day working with them outside the classroom.

Ongoing training is vital to the appropriate implementation of the program because teachers are always learning new ways to use a child's ability in the classroom environment, e.g., the use of dictated spelling. The nature of this training is the prerogative of the local classroom, school, or district. Toward this end, the High/Scope Foundation emphasizes the Training of Teacher-Trainers program because on-site trainers continue to be available after the initial training period. These local trainers are in a better position to create staff ownership and expertise through relevant in-service programs. Part of the trainers' training focuses on establishing and maintaining effective training systems for staff.

At one visited site, the teachers and site-based administrator took most of the responsibility for ongoing training. Monthly staff development sessions were held. These sessions primarily involved bringing a variety of consultants to the school to keep teachers and aides updated on new issues, practices, and activities.

3. Staffing

The K-3 program is designed to be managed by one teacher with approximately 25 children. No ratios of staff to students are specified for the preschool program. However, teachers in three separate sites where the program is being used recommend that each classroom have a full-time aide. (Two of these sites have preschool programs; the third is a demonstration site for the K-3 program.) Teachers and aides in these sites also encourage the use of parent volunteers as often as possible. Teachers and administrators in the K-3 demonstration site recommend that a staff person in the district's central office (e.g., the Director of Curriculum and Instruction) be assigned to spend about 10% of his/her time to support the program. This percent would vary slightly depending upon the number of schools in the district using the High/Scope Curriculum.

4. Facilities

No special facilities are required for implementing this program. It has already been used successfully in such facilities as private pre-schools, part-day programs, full-day programs, Head Start programs, and public school settings.

5. Curriculum, Equipment, Materials, and Supplies

Though the K-3 program can be used with most of the new basal texts designed for grades K-3, use of the High/Scope Curriculum means that much of the existing curricula will be replaced. Classrooms must be stocked with a rich variety of commercial and noncommercial materials. The Curriculum offers suggestions for storing and displaying children's material. Also, the High/Scope Foundation has available a variety of materials to support teachers and administrators in program implementation. In addition to the curriculum guides mentioned previously, the Foundation publishes the following materials that are considered "necessary for providing instruction": Child Assessment Record (CAR), Child Observation Record (COR), Program Implementation Profile (PIP), and Transactional Intervention Program (TRIP).

Each classroom should be equipped with a computer center containing sufficient computers with voice capabilities for one-third to one-fourth of the class to be able to work two to a computer (Wallgren et al., 1989, p. 9).

To reflect curriculum changes in recent years, K-3 curriculum guides in mathematics, science, language, and literacy, and movement have been revised and are available for national dissemination. The manual for High/Scope's preschool program, entitled Young Children in Action (Hohmann et al., 1979), is currently being rewritten to reflect current curriculum practices. This revision should be completed in 1993.

6. Classroom Arrangement

Guidelines for room arrangement are flexible and the room can be arranged in many ways and tailored to any setting. However, the classroom must be arranged to encourage children's active learning and must include a large-group meeting space, activity centers, and work spaces for small groups of children (Buckleitner, 1989, p. 11). A room arrangement checklist, called the High/Scope Room Arrangement Checklist, and sample room arrangements are provided for arranging classrooms into activity centers (e.g., blocks, house, art, music) and for storing materials and displaying children's work, adding new materials, and accommodating children with special needs (See: Wallgren et al., 1989, pp. 11-12; Hohmann et al., 1979, pp. 294-298).

7. School and District Organization

The High/Scope Curriculum does not require changes in school or district organization.

IV. MONITORING IMPLEMENTATION OF HIGH/SCOPE CURRICULUM

A. Student, Classroom, and Building-Level Outcomes

Training for the High/Scope Curriculum stresses the importance of a regular evaluation process so that teachers can fine tune the learning environment and daily routine to build on each child's strengths. The High/Scope Child Observation Record is a form of ongoing evaluation that is an integral part of the Preschool and kindergarten curriculum. This assessment form is used by adults to record brief comments on the things that each child has done relative to each key experience category (Buckleitner, 1989, pp. 8-9). In addition, traditional methodology and instrumentation (e.g., teacher-constructed unit tests, criterion-referenced, and standardized tests) can be used to evaluate students' cognitive and social development at the individual, classroom, or building level.

B. Overall Program Implementation

The High/Scope Curriculum provides an instrument, called the Program Implementation Profile (PIP), that is designed to assess the degree to which four basic aspects of the High/Scope Curriculum have been implemented: (1) physical environment, (2) daily routine, (3) adult-child interaction, and (4) adult-adult interaction. The profile is divided into four sections representing the above areas. The 30 items on the PIP are scored using a 5-point rating scale which ranges from a low to a high level of implementation (High/Scope Educational Research Foundation, 1989). It can be used as an assessment tool, training aid, and a means of insuring quality control in early childhood programs. The PIP reflects both the generic elements that define all developmentally appropriate programs and the specific elements that identify the High/Scope Curriculum.

V. EVIDENCE OF EFFECTIVENESS

The original High/Scope Perry Preschool program, which used the precursor to the High/Scope Curriculum, ran from 1962-1967. The purpose of the original Perry Preschool study was to explore the long term effects on pre-school students of participation versus nonparticipation in this early childhood education program. As the curriculum has evolved, High/Scope has used funding from the Ford Foundation and the Carnegie Foundation to continue the Perry Preschool Project as a longitudinal study to explore the long term effects of participation on 123 Black children from low-income families. These children were seen as being "at risk" for failing in school. Results to age 19 indicate lasting beneficial effects in increasing school persistence and achievement; decreasing delinquency and crime, the use of welfare assistance, and incidence of teenage pregnancy; and increasing the rates of high school graduation, enrollment in post-secondary programs, and employment. Also, the preschool students were less likely to be identified as mentally retarded (15% vs. 35%) than the no-preschool control group. Though not specifically identified as having disabilities, many of the original Perry Preschool subjects would be classified today as having mild or moderate disabilities. The average IQ score for the children was 78, with the range from 60-90 (Weikart, 1988).

These findings of the High/Scope Foundation were confirmed by a study conducted by a research team from Cornell University. Lazar, Darlington, Murray, Royce, & Snipper (1982) analyzed the Perry Preschool data along with data from 12 other preschool programs and concluded that well-organized and carefully monitored early education programs have long lasting beneficial effects for the students.

The High/Scope Foundation also conducted a cost-benefit analysis of the Perry Preschool Project and concluded that the program produced a return of from three to six dollars for every dollar spent on the program during the preschool years.

The success of participants in the preschool project, in later schooling and in their lives as young adults, attests to the impact of the original curriculum. As that curriculum has become enriched with other developmental educational concepts and activities, it has shown its utility in hundreds of preschools around the country and the world.

Three additional studies were completed in 1986-87 by an independent research team from Oxford University. These studies were carried out to measure the effectiveness of the High/Scope Curriculum and Training Program in the United Kingdom. The evaluation results, which are reported in the High/Scope Training of Teacher-Trainer Projects in the United Kingdom--Final Report (Epstein, 1989), indicated that project participants were very satisfied with the training, and felt that there had been growth in morale, teamwork, and an understanding of children's needs. In addition, the report stated that (a) children were more actively involved in their own learning and (b) staff were working together to apply their newly learned principles of child development. Children in High/Scope classrooms were engaged in more sophisticated play sequences, and played for longer periods of time, as compared with children in traditional British classrooms.

In 1988-90, the High/Scope Foundation studied the effectiveness of the High/Scope Curriculum in three school districts. This study was funded by the U.S. Department of Education. In each of two school years, the reading, language, and mathematics achievement scores (on the California Achievement Test) of children in grades 1, 2, and 3 in each school were compared with those of two comparison groups (one in the same school and one in another school). The High/Scope Follow Through classes posted higher achievement test scores than the comparison classes on two of every three comparisons (Schweinhart & Hohmann, 1991). Researchers are currently analyzing the data collected during the third year of the study (1990-91 school year).

VI. SOURCES OF ADDITIONAL INFORMATION

Contact the following for additional information about the High/Scope Curriculum, including training, program implementation, and the names of sites that are currently implementing the High/Scope Preschool and/or K-3 programs and are willing to share their experiences:

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STRATEGIES INTERVENTION MODEL

Developed by Don Deshler and Jan Schumaker

General Description: The Strategies Intervention Model (SIM) curriculum is a series of specific intervention strategies used to teach students "how to learn." The curriculum includes strategies for students, specific instructional procedures for teachers, and the arrangement of a strategic environment in order to promote effective and efficient learning behavior. The learning strategies are techniques, principles, and rules that enable a student to learn to solve problems and complete tasks independently. The strategies are taught to students through the use of a prescribed instructional process that includes practice using each strategy with learning tasks students are addressing in their school coursework. The ultimate purpose of SIM is to enable students to successfully analyze and solve novel problems that they encounter in both academic and nonacademic environments. The goals of the program are to develop independent skills in students to enable them to:

- Learn & perform tasks independently.
- Exhibit appropriate social and personal skills.
- Earn standard high school diplomas.
- Make successful transitions to post-high school settings.

Target Population: SIM was designed to help adolescents with learning disabilities cope with the increasing demands for acquiring and memorizing large amounts of information and for demonstrating their knowledge and command of this information. As the program has evolved, it has been found to be applicable for students in upper elementary grades, adults with learning problems, and adolescents who have a variety of learning needs.

Implementation Considerations: The SIM includes a learning strategies curriculum that must be directly taught. Therefore, time must be scheduled during the instructional day to teach SIM; time that would have been spent on other subject areas. Training is necessary for teachers to become prepared to implement SIM. Training cannot be completed in one session and is often extended over 2-3 years.

Program Effectiveness: A number of studies have been conducted to examine the effectiveness of specific strategies, assimilation of students with learning disabilities who have learned the specific strategies in general education classes, and ability of students to generalize strategy use to a variety of academic situations. Results of these studies provide support for the effectiveness of strategy instruction and the usefulness of SIM as a means for effecting successful mainstreaming. Evidence of strategy generalization is mixed. The developers recognize a need to study the overall effects of SIM as a comprehensive instructional program.

Costs: Primary costs include purchase of the SIM manuals and training. In February, 1992, a set of five manuals cost $71.50. Training costs include trainer cost per day (about $200-$300 in 1982), and trainer's travel and per diem. It should be noted that the SIM manuals can only be purchased as part of the training process.

STRATEGIES INTERVENTION MODEL

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I. INTRODUCTION

The Strategies Intervention Model (SIM) was developed to help adolescents with learning disabilities cope with the increasing demands for acquiring and memorizing large amounts of information and for demonstrating their knowledge and command of this information. The SIM includes a curriculum of strategies for students, specific instructional procedures for teachers, and the arrangement of a strategic environment in order to promote effective and efficient learning behavior. The SIM curriculum is a series of specific intervention strategies used to teach students "how to learn". The curriculum is organized in three major strands that correspond to the major demands of a secondary school curriculum--strategies that help students acquire information from written materials, strategies that enable students to identify and store important information, and strategies for facilitating written expression and demonstration of competence.

Learning strategies are techniques, principles, or rules which enable a student to learn to solve problems and complete tasks independently. Sixteen different learning strategy instructional programs have been developed at the University of Kansas Institute for Research in Learning Disabilities (KU-IRLD). The strategies are taught to students through the use of a prescribed instructional process that includes practice using the strategy with learning tasks that the students are addressing in their school work. Although the SIM was designed primarily to be taught in resource room settings by special education staff, it also has been used successfully in general education class settings. Additionally, general and special education staff will find it necessary to engage in joint planning or collaboration in order to promote student use of strategies in regular classrooms.

A. Purpose and Goals of SIM

SIM was originally developed for use with adolescents with learning disabilities in junior and senior high schools. As the program has evolved, it has been generalized to the wider population of upper-elementary school students and adults with learning problems. The instructional goal is to teach students how to learn rather than teaching them specific content. Students are taught techniques and strategies for organizing, summarizing and/or memorizing subject matter information that has to be learned to meet specific academic requirements.

While learning how to use these strategies for a specific subject content area, students learn skills that help them acquire information in other subject matter areas. The ultimate purpose of learning strategies instruction is to enable students to successfully analyze and solve novel problems that they encounter in both academic and nonacademic environments. Students learn skills that will allow them not only to meet immediate requirements successfully, but also to generalize these skills to other situations and settings over time (Deshler & Schumaker, 1986). Specifically, the goals of the program are to develop independent skills in students to enable them to:

- Learn and perform tasks independently,
- Exhibit appropriate social and personal skills,
- Earn standard high-school diplomas, and
- Make successful transitions to post-high school settings.

B. Contribution to Mainstreaming

SIM has been specifically designed and developed to assist students who have learning disabilities in successfully meeting academic requirements in general education classes. To facilitate the education of students who have disabilities in general class settings, the demands or expectations of the general classroom must be specified to determine which learning strategy to use. A strategy is then taught to the student in the resource room by the special education teacher using the step-by-step instructional procedures described in Section II of this summary. The student then uses this strategy in other settings and reports back to the resource teacher, who helps monitor the effectiveness of its use. Periodic checks are made by the teacher to ensure that the student continues to use the strategy. In many districts using the SIM, teachers report that training in the use of learning strategies is frequently included in the IEP planning for students with disabilities.

The general education class teacher who has responsibility for teaching mainstreamed students who have learning and other mild disabilities plays a vital role in the successful use of learning strategies in his or her class. An environment must be established in the general education classroom that is supportive of the use of strategies learned in support classes. General education teachers must know enough about the specific strategies available to the student to cue the appropriate use of various strategies. Without the cooperation and participation of the general education teachers, generalization of the strategies for the general education class setting will be difficult.

C. Development and Foundation

SIM is based on the Strategies Instructional Approach (SIA) which is a method for selecting, delivering, and organizing curriculum (Deshler & Lenz, 1989). SIA focuses on empowering students for success both in and out of school by emphasizing the process of learning rather than specific content alone. In other words, students are taught how to learn and how to perform. They learn strategies that help them to successfully apply skills and use knowledge. A major goal is to create an instructional environment in which strategic learning and teaching can occur. Strategic teaching consists of creating an environment that provides students with many opportunities to observe and practice strategic behavior (Deshler & Lenz, 1989). The SIA is considered the umbrella under which the SIM was developed.

Both the SIA and the SIM draw from the cognitive learning theory literature, and in particular, on the metacognition literature (Meichenbaum, 1977; Weinstein & Mayer, 1985). Much of the study of the mediation of behavior can be traced to the work of Luria and Vygotsky, two Russian scientists. Building on Luria and Vygotsky's work in the United States, Flavel (1970) took the position that mediation behavior was not an age-stage related phenomenon. Instead, mediation was viewed as a behavior that occurred spontaneously at nearly all ages. Within this context, there was a great deal of work conducted in the sixties and seventies studying mediational processes among individuals with mental retardation (Brown, 1974; Belmont & Butterfield, 1969; Butterfield, Wambold & Belmont, 1973). Belmont and Butterfield (1977) traced the development of more specific interests in cognitive and metacognitive training. Rather than viewing young children as having built-in biological limitations to the quality of their thought, the metacognitive approach sought to demonstrate that children could be taught to think operationally through appropriate training (Deshler, Warner, Schumaker, & Alley, 1983). Accordingly, the mediation research shifted from a focus on specific mediation processes to a focus on the development of control and awareness of cognitive processes. This line of research and development work has become referred to as metacognitive processes and cognitive behavior modification (Meichenbaum, 1977; Flavell & Wellman, 1977).

A fairly elaborate theoretical research literature foundation has been established by the program developers (Deshler & Schumaker, 1986; Schumaker, Deshler, & Ellis, 1986). Several key premises have emerged. First, the development and application of learning strategies or metacognitive skills is significantly related to age; that is, older students consistently are more proficient in the use of such behaviors (Armbruster, Echols, & Brown, 1984). Second, adolescents who "learn how to learn" in secondary schools will be in a much better position to learn new skills and to respond to rapidly changing information and conditions in the future (Deshler & Schumaker, 1986). Third, a learning strategies instructional approach requires students to accept major responsibility for their learning and progress (Wong, 1980). Such a commitment must be made by students if they are to truly become independent.

The development of the learning strategies training packages reflect the influence of the body of literature discussed above. This influence can be seen in a number of ways: (1) the specific strategies previously used in laboratory settings have been restructured for use in public school classroom settings; (2) the classification of the types of strategies that have been developed and field tested have been based on the mediation and cognitive development research; (3) the development of the training process used by the SIM reflects the training processes used in laboratory research; and (4) the development of goal-setting strategies reflects similar efforts in the cognitive/mediational literature.

D. Key Principles Upon Which SIM is Based

Four philosophical principles have guided the development of SIM and should guide its implementation:

1. Most adolescents can learn to function in an independent and interdependent manner in mainstreamed settings.

2. The role of the special education or support class teacher is to teach students strategies that will prepare them to function independently.

3. The role of the general education or content teacher is to deliver subject matter content in a way that can be understood and remembered by low-achieving students.

4. Successful interventions are contingent on the degree to which students have a major voice in decisions about what strategies they are to learn and how fast they are to learn these strategies.

According to the developers, school personnel must accept these principles in order for SIM to have a positive effect on student progress and success.

The following instructional principles also guide the implementation of the SIM:

1. Match Instruction With Curriculum Demands. The demands of the classroom environment that the student is failing to meet are the focus of assessment as opposed to assessment of the student's deficits.

2. Use Structured Teaching Methodology. A series of structured, instructional procedures have been developed and field tested. The purpose of the use of these steps is to assure that students learn and apply the learning strategies successfully.

3. Maximize Student Involvement. It is critical that students feel they have a vested interest in their intervention program. The learning strategies approach to instruction endorses the notion that students understand they must actively participate in their learning to ultimately assume control of the learning situation. This is accomplished through a variety of mechanisms, such as having students set goals and evaluate their progress, take part in the development of the IEP, and regularly exhibit a commitment to learn specific strategies.

4. Promote Generalization. After students have demonstrated mastery of the use of a learning strategy with a specific academic task, they must be systematically taught how to apply the strategy to other settings and tasks.

II. SIM DESCRIPTION

SIM consists of three components: Strategic Curriculum, Strategic Instruction, and Strategic Environment. The Strategic Curriculum specifies what will be taught to students. The curriculum incorporates principles of the Strategies Instructional Approach, addresses demands related to success across settings, focuses on meeting task demands and not simply learning a strategy, and focuses on a wide range of needs of students who are experiencing difficulty in school. Four types of strategies are presented in the Curriculum:

- Learning Strategies focus on teaching students how to acquire information, store information for later use, and demonstrate their competence with the information.
- Social Skill Strategies focus on teaching students strategies for interactions with others (e.g., conversation, friendship, getting along, and problem-solving) and for decision making within social situtations.
- Motivation Strategies focus on enabling students to set, monitor, and attain goals and to communicate their goals to others.
- Executive Strategies focus on teaching students how to select the appropriate strategy to use in a specific situation, to adapt a strategy when necessary, and to develop new ones.

The learning strategies are organized into three major strands that correspond to the major demands of a secondary school curriculum: acquisition, storage, and expression and demonstration of competence. The acquisition strand includes strategies that help students acquire information from written materials. Six strategies are included in the acquisition strand:

- Word Identification Strategy - aimed at the quick decoding of multisyllabic words.
- Visual Imagery Strategy - used to form a mental picture of events described in a written passage.
- Self-Questioning Strategy - used to form questions about written information that has not been provided by an author and to find the answers to those questions later in the written passage.

- Paraphrasing Strategy - used to paraphrase the main idea and important details of each paragraph after it is read.

- Interpreting Visual Aids - used by students to gain information from pictures, diagrams, charts, tables and maps.

- Multipass - used to attacking textbook chapters by conducting three passes through the chapter to survey it, to obtain key information from it, and to study the critical information.

The storage strand includes strategies that enable students to identify and store important information. Three strategies are included:

- Listening & Notetaking Strategy - enables students to identify organizational cues in lectures, to note key words, and to organize key words in outline form.

- FIRST - Letter Mnemonic Strategy - enables students to memorize lists of information by teaching them to design mnemonics or memorization aids.

- Paired-Associates Strategy - enables students to memorize pairs or small groups of information by using visual imagery, matching pertinent information with familiar objects, coding important dates, and applying a first-syllable technique.

The expression and demonstration of competence strand includes strategies for facilitating written expression and demonstration of competence. Six strategies have been designed to enable students to cope with the written expression demands of secondary schools:

- Sentence Writing Strategy - provides students with a set of steps for using a variety of formulas when writing sentences.

- Paragraph Writing Strategy - helps students organize and write several types of paragraphs.

- Error Monitoring Strategy - used to detect and correct errors in written products.

- Theme Writing Strategy - used to organize and write a five-paragraph theme.

- Assignment Completion Strategy - used by students to schedule time and organize themselves to complete assignments on time.

- Test-Taking Strategy - enables students to effectively take classroom tests.

The 31 social skills strategies are contained in a separate curriculum, Social Skills for Daily Living (published by American Guidance Services). Motivational and executive strategies are taught within the context of the learning strategies.

The Strategic Instruction component describes the methods that can be effectively used to teach the strategies. Strategic Instruction provides for direct explanation of strategies, takes into account students' lack of strategies, attends to the stages of learning, incorporates principles of effective instruction, requires active student participation and involvement, and prompts student independence. Four types of teaching procedures are used.

- Acquisition Procedures provide teachers with a sequence of steps for teaching strategies to mastery--from initial acquisition to proficient use of the strategy.
- Generalization Procedures provide teachers with a sequenced set of steps for teaching and ensuring transfer of newly-acquired strategies to other settings and situations.
- Strategic Teaching Behaviors involve procedures that teachers must incorporate into their instruction to promote student learning such as requiring performance, reacting to student performance by evaluating progress and providing daily feedback, organizing instructional delivery by using advance and post organizers, and informing students of important concepts and expected student behavior.
- Content Enhancement Procedures are routines and devices for delivering content information in such a way that students more easily understand and remember that information.

The third SIM component is the Strategic Environment which focuses on the management and organization of educational settings, programs, and resources to effectively promote and prompt strategic learning and performance. A Strategic Environment requires teaming between teachers, students, parents, and other professionals; stresses importance of progress, performance, and generalization feedback; focuses on the change and development process; promotes effective organization of time and resources; and facilitates student interdependence. The Strategic Environment component includes four areas related to managing and organizing the educational environment to promote effective and efficient learning and performance by students:

- Teaming Techniques consist of methods related to preparing teachers, students, parents, and other professionals to work cooperatively to promote student independence and success.

- Management Techniques refer to procedures related to managing materials, personnel, time, classroom arrangements, and student behavior to achieve optimal learning situations focused on developing effective and efficient student learning and performance.

- Evaluation Techniques are those procedures which allow assessment of student performance, program success or failure, and teacher performance.

- Development Techniques provide methods for systematically implementing program components and developing strategies based on student needs.

To implement SIM, the teacher follows an eight-step instructional process. First, the student is pretested to determine his or her current learning habits regarding a particular task. Once it has been determined which strategies the student needs to learn, one strategy is selected and the new strategy is described to the student. In this second step the strategy is broken down into component steps, rationales for learning the strategy are given, the types of results students can expect to achieve are provided, and situations in which the strategy can be used are delineated (Deshler & Schumaker, 1986). In the third step, the new strategy is modeled for the student as the student and instructor "think aloud." The student is enlisted to participate in the modeling process only after the instructor has thoroughly and clearly presented and modeled use of the strategy. Step three concludes with the student demonstrating the strategy. Next, the student uses verbal rehearsal to learn to name all of the steps of the strategy in sequence. In the fifth step, the student practices the new strategy under controlled guidance to a specified criterion performance level. The sixth step involves the student practicing the strategy in a situation that closely approximates the tasks encountered in general education classes. Feedback and reinforcement are a routine aspect of this step. In the seventh step in the learning procedures, the student receives a post-test to determine if performance has progressed to a point that indicates the strategy can be used to cope with academic tasks. Finally, in step eight, after the student has demonstrated mastery of the use of a learning strategy with a specific academic task, he/she is systematically taught how to generalize the strategy to other academic tasks. A series of generalization lessons are presented that include creating awareness of when and how to use the strategies, programmed practice, and periodic review and feedback. As part of the generalization process, planning takes place between resource and general education teachers. General education teachers are encouraged to cue students to use the strategy at the appropriate time.

III. SIM IMPLEMENTATION

A. SIM in Action

Kathy Brown, the Resource Room Specialist at Long Point High School, is beginning a new unit on teaching seven high school age students with learning disabilities the test-taking strategy. Ms. Brown sets the stage for the lesson by asking a question of the group. "Does anyone know what a strategy is?" The next two or three minutes involve a discussion among the students and Ms. Brown around the definition of a strategy. "That's right, a strategy is a plan or method for solving a problem or completing a task." Ms. Brown next leads a discussion about the importance of developing good test-taking skills. As the discussion ends, she asks, "How many of you would like to learn a strategy that will help you earn higher grades on tests?" Most of the students in the group smile and raise their hands. "Today you will begin learning a strategy that will help you improve the way you take tests. It is called the Test-Taking Strategy. Most of you should be able to learn how to use this strategy in 4 to 5 weeks. Lets begin by going over the steps of the test-taking strategy called PIRATES." Ms. Brown, using an over-head transparency, uncovers the first step that flashes on the screen at the front of the room, STEP 1: Prepare to succeed. During the next 30 minutes, Ms. Brown presents the four tasks that are necessary for successful completion of Step 1: Write your name on the test, write PIRATES on the test, allot time and order, and say affirmations. Each task is accompanied by student discussion and guided practice of the task. Ms. Brown will sequentially present instruction and practice for the other six steps of PIRATES. They are: (1) inspect the instructions; (2) read, remember, and reduce; (3) answer or abandon; (4) turn back; (5) estimate; and (6) survey. During the next several weeks the students will continue to work toward mastery of the Test-Taking Strategy.

B. Participant Roles

1. Students

The primary role of students is to learn how to independently use learning strategies. This is central to the success of the program because student mastery of the use of the learning strategies will determine the extent of success in developing academic knowledge and skills.

During the development of strategic behavior, the student interacts with the teacher following the series of eight systematic instructional steps described earlier. The student's role in these instructional steps includes (a) taking a pretest and making a commitment to learn the strategy; (b) developing an understanding of where, when, why, and how to use the strategy and how to make decisions about its use; (c) verbally rehearsing the strategy steps and elaborating on what the strategic process is designed to accomplish and what the process involves; (d) practicing the strategy in a controlled environment; (e) independently practicing the strategy with general education class texts; and (f) taking a post-test and making a commitment to generalize use of the strategy. After a student has mastered use of a strategy, the student's role in the generalization process includes: (a) identifying situations and settings in which the strategy can be used; (b) planning when and where to use the strategy; (c) applying the strategy outside the class in which it was taught; and (d) adapting the strategy when necessary or integrating one strategy with another to meet new demands. During and following implementation of the generalization procedures, it is the student's responsibility to use the strategy at the appropriate times in general education class and study situations. Students must have a clear understanding of how important it is for them to deliberately look for opportunities to apply learning strategies to help them meet demands in the general education setting.

2. Teachers

The SIM is primarily a teacher-directed program that requires teachers to develop the knowledge and skills to effectively teach the learning strategies curriculum. These effective teaching behaviors include (a) providing appropriate positive and corrective feedback; (b) using organizers throughout the instructional sessions; (c) ensuring high levels of active academic responding; (d) programming involvement in discussions; (e) providing regular reviews of key instructional points; (f) checking for understanding; (g) monitoring student performance; (h) requiring mastery learning; (i) communicating high expectations to students; (j) communicating rationale for instructional activities; and (k) facilitating independence. In addition to these general teaching behaviors special and general education teachers have distinct roles to fill in the SIM.

The major roles of the special education teacher include: (a) teaching specific academic strategies to students with disabilities by using a specified instructional methodology; (b) teaching social skill strategies and transitional strategies such as problem solving and goal setting; (c) creating a "strategic environment" in the classroom (for example, the teacher models the use of the metacognitive strategies in all tasks in the classroom); and (d) deliberately facilitating independent functioning by the students. The special education teacher must be aware of the demands students face in their mainstreamed content classes. With this information the special education teacher can determine the strategies most needed by the students (Deshler & Schumaker, 1988).

The general education/content teachers must teach their classes using specific teaching routines that will enhance understanding and memory. An example of a teaching routine is the use of advance organizers. Content teachers must also cue students with disabilities to use the learning strategies taught to them by the special education teacher. This requires the teacher to learn and understand the individual strategies students are learning. In addition, the general education teacher must reinforce the students when they use the strategies. This is essential for generalization and maintenance of the skills (Deshler & Schumaker, 1988).

Teachers should be aware that implementation of the SIM will impact on the amount of time available to teach other academic material because the SIM involves teaching a learning strategies curriculum. Time that would have been spent on other subject areas will be occupied by the SIM curriculum. Implementors suggest that attention be given to this aspect of the SIM by those considering its implementation. These same implementors also enthusiastically recommend the SIM since once students have mastered the strategies they are able to grasp subject matter faster and with increased success.

It is also important for teachers to make students aware of the range of learning strategies to be taught to them. Thus, students will have an understanding of the array of strategies that are available to them and, once they have learned to use the strategies, can make good decisions about which strategy to use in different situations.

3. Administrators

Involvement of central office and building level administrators is very important to creating awareness, adoption, and planning for SIM implementation. Administrative support will be required to obtain funding for a long-term training sequence, scheduling training sessions, arranging for appropriate training facilities, contracting with trainers, and arranging for teacher release time to attend training. Additionally, the developers have found that SIM implementation is enhanced if administrators are present during all training sessions. Not only is administrators' attendance at training sessions critical as demonstration of their support for the program, but is also contributes to their understanding of their roles and of how they can support the changes teachers make (Schumaker & Clark, 1989).

Responsibility for managing and coordinating SIM implementation is usually assigned to a specific administrator or supervisor. The involvement of the SIM coordinator in all training is essential. The coordinator's role includes (a) clear and comprehensive communication about SIM to the entire local education agency (LEA) staff; (b) organizing the staff for decision-making; (c) coordinating staff training; (d) administering the implementation of the program; and (e) evaluating the effectiveness of SIM implementation. The coordinator may also be responsible for producing progress reports on the use of the program.

4. Parents/Community

As with any program or instructional method, the home can be a major ally of the teacher and school in reinforcing positive student behaviors. It is recommended that parents be provided information about SIM so that the strategies can be reinforced at home.

C. Implementation Requirements

1. Planning

After a decision is made to adopt SIM (either school- or district-wide) written commitments are required by the KU-IRLD from administrators and teachers to attend sessions and support the long-term training process. Additionally, a plan for training, implementation, and support during implementation is developed between the SIM trainer and the school or district. The plan will include statements related to the desired outcomes, the target group for training and implementation, identification of the SIM coordinator, and participants' expectations as well as the procedures that will be followed to carry out the plan (Schumaker & Clark, 1989). Although there is no recommended period of planning for schools or districts interested in adopting the program, representatives of successful program implementation sites suggest a year of planning before implementation is initiated. Developers estimate that five to seven years will be needed to fully institutionalize the SIM in a school or district.

According to some implementors, planning responsibilities for district implementation are often assigned to the Special Education Director, in close cooperation with the principals of the participating schools. Additional planning activities include (a) communicating with school and district staff to provide an orientation to the program and promote acceptance of the use of the program; (b) selecting the teachers who will use the program; (c) making arrangements for staff training; and (d) purchasing SIM instructional materials.

Mandating the use of the program across all teachers and programs is discouraged. The most successful SIM implementations begin with an introduction of SIM to all personnel through written communication or an orientation workshop. After school and district staff have an initial awareness of the program's theory and approach, volunteers can be solicited to participate in SIM training. Participants in the program are then selected from the volunteers.

The developers report that ongoing planning for SIM implementation is essential. Since training is ongoing the content for future sessions will need to be planned. In addition, as more strategies are trained and implemented, a scope and sequence of strategies instruction will need to be developed. At individual schools, teachers will need to plan how to incorporate each new strategy into their repertoire without dropping any of the previously learned strategies. It is recommended that teachers who are implementing the SIM have an opportunity to meet on a weekly basis to discuss implementation and support one another.

2. Training

Teacher training in the use of SIM is a major aspect of the preimplementation and implementation process. Three to five years will be needed to fully train teachers in the use of the SIM. Training must allow for awareness, practice, and application. A certified SIM trainer must be contracted to provide training. Training sessions will need to be spaced several months apart to allow teachers time to fully implement instruction in one strategy before being required to learn to implement instruction in another strategy.

The initial training session will provide an overview of the SIM, including the purposes and philosophy behind the SIM, evaluation data, and requirements for successful implementation. About three hours are needed for the overview session. Subsequent training sessions will provide in-depth training of the instructional procedures used to teach strategies as well as training in specific strategies. Only one strategy will be trained in each session, with no more than two to four strategies trained during one school year. Strategy training sessions will be scheduled two to three months apart to allow trainees time to implement each strategy before learning another and to allow students sufficient time to master and generalize a strategy before being introduced to another.

Training in each strategy generally is accomplished in three to six hours. Each block of time is devoted to: (a) learning about a specific strategy or instructional procedure; (b) practicing aspects of the learned strategy or procedure; (c) receiving feedback related to the practice; and (d) planning how to use the learned skills. Within each training session, the strategy or procedure is thoroughly described including the research basis for the strategy and the outcomes students can be expected to achieve; the procedures are modeled; key steps of the process are practiced by the participants; management and progress monitoring procedures are described; and teachers plan for implementation of the strategy (e.g., set goals for implementation and consider what aspect of their current program will be omitted to allow time to implement instruction in the new strategy). All materials and equipment needed to train the strategy are provided at the session. In addition, the first strategy training session focuses on how to introduce strategy instruction to students and on setting up teacher support teams. In subsequent sessions, time is devoted to debriefing, discussing management issues related to previous strategies trained, learning about and discussing the change process, reporting successes, and problem-solving. In every session, teachers make a commitment to devote a certain amount of instructional time per day to teaching a specified number of students the new strategy through generalization. A minimum of 30 minutes of instruction per day is required for a group of three students.

The training schedule may be arranged in a variety of ways determined by individual school or district policies, teacher preferences, and trainer availability. Usually, training is delivered in one or two full-day workshops, with four to six days of training planned during a school year. Recently, in some sites, in-service training has been offered throughout a semester with teachers meeting weekly or biweekly. Using this format, specific aspects of the strategy or procedure are presented, practiced, and immediately implemented by the teachers, and support and problem solving can occur on a regular basis.

As teachers are implementing instruction in individual strategies between training sessions, they maintain records of student progress and keep written logs of the instruction provided and the problems encountered. Support teams, comprised of approximately four to eight teachers each, should be formed and scheduled to meet at least once a month for one to two hours to share information about implementation (successes as well as challenges), assess progress toward implementation goals, and develop solutions to challenges encountered. Typically, the SIM coordinator leads these meetings; the trainer may or may not attend. The emphasis during these meetings is on facilitating the teachers' problem solving so they can become invested in the program and confident of their problem-solving abilities. Also, as the teachers implement strategies instruction, the SIM coordinator monitors implementation and discusses teacher progress with the trainer; if necessary, changes in the initial training plan are made based on participating teachers' needs and concerns.

Following the initial implementation efforts whereby a single strategy is learned and implemented, the training focus shifts to questions and issues related to developing a strategies-based program rather than simply teaching individual strategies. During this phase of the training, teachers learn how to become strategic teachers and how to manage an integrated strategies program. For example, they learn how to teach students to identify their strengths and weaknesses, set long-term goals related to strategies learning, and participate in IEP conferences to ensure that their goals are included in the IEP (Van Reusen, 1985; Van Reusen, Bos, Schumaker, & Deshler, 1987 as cited by Schumaker & Clark, 1989). Participants also learn Teaming Strategies for working with administrators and with other teachers on behalf of students in the strategies program. They learn management techniques for conducting instruction in several strategies simultaneously, how to create a strategic environment, and to evaluate the outcomes of that environment. They also learn how to invent strategies that meet students' specific needs. Finally, they plan a scope-and-sequence of instruction across the grades.

The final training phase involves helping a school or district become self-sufficient in maintaining the programs that have been developed. At this stage, policies and procedures are formalized within programs and across the school or district. In addition, steps need to be taken to allow for continuity in the case of staff turnover. An individual or a team of individuals from the school or district is identified in this phase to be prepared as SIM trainers. Selection of individuals as potential trainers is based on several criteria: (a) level of knowledge about strategies instruction; (b) extent of previous implementation of strategies instruction; (c) potential to provide leadership to training and implementation within a school or district; (d) ability to reflect on one's own implementation experiences as well as on those of others; and (e) willingness to invest time and effort in the preparation required to be a trainer. Selected individuals receive specific training in the background and basis for strategy instruction, the change process, presentation and training techniques to be used with adult learners, and support techniques for use with implementing teachers. By training local school and district staff as SIM trainers, the school or district is assisted in developing the necessary resources to maintain the program with less reliance on outside trainers.

The SIM developers have identified ten essential factors that must be adhered to if training associated with the program is to be effective.

(a) The training sequence recommended for the program must be scheduled and accommodated.

(b) Key administrators must attend the overview session.

(c) All targeted teachers and their supervisors must attend all training sessions.

(d) Training sessions must not exceed a maximum of 30 participants.

(e) Trainees must agree to keep careful and complete records of student progress as a basis for receiving feedback and further instruction.

(f) Each supervisor participating in the training sequence must agree to active, intensive involvement in all phases of the training, including attending all sessions and teaching each strategy to at least two students.

(g) Each teacher involved in training must agree to commit 30 minutes a day to instruction in each strategy and target at least three students to teach to mastery in each strategy.

(h) A site coordinator must be appointed at the local site to serve as the contact person for the trainer as well as an on-site visitor for all trainees.

(i) All staff involved in training must maintain a log of their experiences encountered when implementing the instructional procedures. Logs will be brought to each training session for the purpose of debriefing, clarification of issues, and sharing of s[illegible].

(j) Training in all components of SIM must be accomplished over a three-year period of time. A commitment to receive training in the complete program is necessary.

In preparing to implement SIM, certain costs will be incurred, with training requiring the largest commitment of resources. Generally, three to six days of training per year are required. In 1992, the average cost for training ranged from $200 to $300 per day per trainer plus travel and per diem expenses. Although, as noted above, the developers of SIM recommend that training sessions be limited to a maximum of 30 participants, those who have implemented SIM report that about 35-50 teachers can be adequately trained during a training session. The critical factors in setting a maximum number of participants are the comfort level of participants in asking questions and the ability of the trainer(s) to adequately monitor small and large group activities and provide feedback about practice to groups and individuals. Each teacher being trained in SIM will also need to purchase five training manuals for teaching the learning strategies at a total cost of approximately $71.50 (1992 price). In some states where SIM has been implemented, costs to the district for training have been substantially reduced because the state provided or underwrote the training.

3. Staffing

No additional instructional or supervisory staff are needed to implement SIM since the program can be implemented with existing staff. Implementation of the program strategies involves commitment of instructional time to teaching the strategies in addition to teaching subject matter. Although no additional supervisory staff are needed, additional supervisory time will likely be required for coordination of the SIM implementation. School personnel who have implemented SIM estimate 20 to 30 percent of a coordinator's time will be needed to effectively implement SIM, evaluate its effectiveness, and monitor the record-keeping of student progress.

4. Facilities

No special or additional facilities are necessary for implementing SIM.

5. Curriculum, Equipment, Materials, and Supplies

The primary resources necessary to implement SIM are a series of five instructor's training manuals. The training manuals include guidelines, scripts, cue cards, and activities for teaching the strategies to students. The cost for all five manuals is approximately $71.50 (1992 price). Each manual presents a specific learning strategy using the program's sequential instructional steps. These manuals provide the objectives to be taught, teaching strategies, and suggestions for follow-up. The manuals also contain instructional worksheets and exercises that can be duplicated for use with students. The manuals can only be purchased in conjunction with approved training workshops.

The social skills strategy curriculum, Social Skills for Daily Living, is packaged and sold separately from other curriculum components. Social Skills for Daily Living contains 31 social skills and is available from American Guidance Service for $330 (1992 price).

Teachers will need access to photocopying since they will need to duplicate progress charts and score sheets for all strategies. Tape recorders will also be needed for some strategies. Other materials, available from KU-IRLD, include: (a) SIM filmstrips--one introduces the concept of strategies instruction to teachers and one introduces the concept to students; and (b) SIM videotapes--one that introduces the SIM through statements by teachers, administrators, and students, and four that demonstrate aspects of strategies instruction.

6. Classroom Arrangement

Implementation of the SIM does not require changes to the classroom setting. SIM learning strategies can be taught in large group settings, such as a general education classroom, or they can be taught in small group or individualized settings, such as a resource room. Frequently, schools that have implemented the program have used the resource room setting as the site for the strategies instruction. However, this is not a condition or a requirement for the use of the program.

7. School and District Organization

No special school or district organization is required.

IV. MONITORING IMPLEMENTATION OF SIM

A. Student, Classroom, and Building-Level Outcomes

One component of the SIM focuses specifically on monitoring and evaluating student progress. Daily records of student progress are maintained on a progress chart or graph. With the use of progress graphs, both students and teachers know exactly where the students' performance levels are at any given time. Work continues on specific learning strategy skills until a high level of mastery has been achieved.

Student progress may also be evaluated by use of pre- and post-test scores on tasks requiring the use of a particular strategy, performance on tasks and assignments in the general education classroom, grades in general education classes, competency test scores, and standardized achievement scores. Grades, competency test scores, and achievement test scores may be aggregated and compared to those of other students.

B. Overall Program Implementation

SIM implementation may be evaluated using procedures provided in the Strategic Environment component. Evaluation techniques are provided to assess, in addition to student performance, program success or failure and teacher performance. In addition, teachers, parents, and students can be surveyed to determine their level of satisfaction with SIM. At one visited implementation site, the school district conducts a consumer satisfaction survey each year to determine the extent to which parents, students, teachers, and administrators are satisfied with the program. At that particular implementation site, results of the surveys have been very positive.

V. EVIDENCE OF EFFECTIVENESS

The KU-IRLD has conducted a series of studies to investigate the effectiveness of SIM and its components. Most of these studies have focused on the effectiveness of specific intervention strategies that have been developed as a part of the program. A few studies have investigated the assimilation of SIM within school settings, and another set of studies has looked at the generalizability of the use of strategies across various instructional situations. Although there have been a substantial number of studies conducted on various aspects of specific components of the program, the developers point out that additional studies must be conducted to examine the effects of SIM as a comprehensive instructional program.

A. Effectiveness of Specific Intervention Strategies

Single-subject multiple baseline designs have been employed to study the effectiveness of the specific learning strategies with adolescents who have learning disabilities. Studies have been reported on the following learning strategies: Paraphrasing, Visual Imagery, Self-questioning, Multipass, Sentence Writing, Paragraph Writing, Error Monitoring, and Listening and Note Taking (Alley, et al., 1983; Clark, et al., 1984; Deshler, et al., 1983; Lenz, Alley, & Schumaker, 1987; Moran, 1980; Schumaker, et al., 1982). These studies report marked gains in specific academic performance and/or behaviors from baseline performance levels to post-intervention levels. Based on these results the developers have stated that, "we are confident that the learning strategies packages developed at the KU-IRLD produce desired changes in students [with learning disabilities] who receive individual instruction on the strategies."

B. Assimilation Within Regular Class School Settings

There is substantial support for the use of SIM as a strategy to facilitate successful maintenance of students with learning disabilities in general education classes. Several studies have demonstrated that these students can experience success in responding to the demands of the mainstream curriculum if the general class teacher uses specific teaching routines and cues the use of previously acquired learning strategies to enhance the understanding and memory of that content (Bulgren, Schumaker & Deshler, 1988; Deshler & Schumaker, 1987; Lenz, et al., 1987).

C. Strategy Generalization

The results of studies investigating the ability of students to generalize the use of SIM strategies learned in one academic context to other academic situations have been mixed. The majority of secondary level students with mild disabilities who mastered the Visual Imagery Strategy, the Self-Questioning Strategy (Clark et al., 1984), and the Paraphrasing Strategy (Alley, et al., 1983) were able to apply the strategies effectively with more difficult materials within the same academic content area and classroom setting. On the other hand, Schmidt, Deshler, Schumaker, and Alley (1989) found that high school students with learning disabilities did not spontaneously use the strategies in the general education classroom at the same level they used them in the setting in which they were taught--the resource room. Some students did not generalize the use of strategies at all, while others showed only partial use of the strategies. However, when specific training for generalization was conducted, the students' use of strategies increased.

VI. SOURCES OF ADDITIONAL INFORMATION

The KU-IRLD provides an array of supportive resources for school district that have decided to adopt SIM. The Institute has developed a number of services for schools interested in learning strategies and SIM.

Strategram Newsletter. This newsletter, published six times a year, provides implementors with suggestions relative to using the SIM. Articles in the Strategram cover a variety of topics. Past articles have included the proper use of progress charts, recent research reports, book reviews, what makes effective SIM teachers, and information about new SIM training materials. Subscription to the Strategram cost $10 per year and can be obtained by writing: Strategram, University of Kansas, Institute for Research in Learning Disabilities, Robert Dole Human Development Center, Room 3061, Lawrence, Kansas, 66045-2342.

Research Reports. The Institute for Research in Learning Disabilities has available 65 reports that describe studies conducted by, or under the auspices of, Institute researchers. In addition, ten papers have been prepared by Institute staff which address issues related to research on adolescents who have learning disabilities. An annotated bibliography of the articles and papers can be obtained by writing the Institute at the same address as above.

SIM Training. Training institutes on the SIM for specific audiences are frequently provided by the Institute for Research in Learning Disabilities in Lawrence, Kansas. Trainers authorized to provide SIM training may also be hired to conduct training at the Local Education Agency level. Information about SIM training may be obtained from:

Dr. Frances L. Clark
University of Kansas
Institute for Research in Learning Disabilities
Robert Dole Human Development Center
Room 3061
Lawrence, KS 66045-2342
(913) 864-4780

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TACTICS FOR THINKING

Developed by Robert J. Marzano and Daisy E. Arrendondo

General Description: Tactics for Thinking (Tactics) is a systematic approach for teaching 22 general cognitive operations (or "thinking skills") that students can use in learning curriculum content and coping with their studies. These relatively independent thinking skills, which are taught in the content area classrooms, are categorized into three distinct groups: learning-to-learn skills, content thinking skills, and reasoning skills. Tactics contains an instructional unit for each thinking skill or tactic that teachers can incorporate in their instruction across any curriculum area. The approach is based on three assumptions. First, the teaching of thinking should be overt, teacher-directed, and part of regular classroom instruction. Second, to a large extent successful students have acquired the essential cognitive skills outside of the explicit curriculum. Third, the direct teaching of thinking skills within formal education will necessitate a change in or restructuring of curriculum, instruction, and assessment techniques.

Target Population: Tactics was originally developed for general education students in grades K-12 but evidence suggests that it would be effective for students with mild to moderate disabilities. However, all 22 tactics may not apply to students at every grade level or in every content area.

Implementation Considerations: Teachers must buy into the basic premise that all students are capable of learning and that thinking is the ultimate goal of education, and then incorporate specific tactics into the curriculum in a way that improves the student's knowledge of content while reinforcing the thinking skills for learning the content. Teachers will need about four days of training, each spaced a week or two apart, prior to implementing Tactics. They will also need time for planning and integrating lessons into the curriculum. Peer coaching is recommended to support the transfer of training from the workshop to the classroom. Though self-study manuals and videotapes are available, teachers are encouraged to combine self-study with formal training.

Model Effectiveness: Several studies combined two or more of the specific tactics into an intervention and analyzed the effects of these combinations on student achievement. The results of these studies support the usefulness of these combinations for processing the information that appears in academic courses and on standardized tests. Also, the effects of 17 of the 22 tactics were studied on an individual basis. Though the outcomes that were studied varied by tactic, the results support the use of Tactics.

Costs: The following materials are available (1990 prices are noted): a series of training videotapes ($595 to purchase and $200 to rent), a Tactics for Thinking Trainer's Manual ($35), a Teacher's Manual ($12), and two sets of reproducible worksheets (Blackline Masters--one for elementary students and one for middle/secondary students; $89.95 per set). In 1990, a trainer's daily fee for training groups of up to 100 ranged from $350 to $800, plus travel and per diem. A district can reduce its training fees by training a cadre of its master teachers to serve as trainers.

TACTICS FOR THINKING
Developed by Robert J. Marzano and Daisy E. Arredondo

I. INTRODUCTION

Tactics for Thinking (Tactics), developed by Robert J. Marzano and Daisy E. Arredondo at the Midcontinent Regional Educational Laboratory (McREL), is a program designed to assist teachers in providing instruction in thinking to students in grades K-12. The program presents a systematic approach to teaching 22 thinking skills and processes. Not all of the 22 skills and processes presented in the Tactics program are easily applied at every grade level and in every content area. The authors suggest, in their Tactics Teacher's Manual (1986), that schools interested in using Tactics field test all 22 units across different grade levels and content areas and then select those that best match the curriculum and students' needs. Additionally, schools will need to identify the grade level and content area in which specific skills should be introduced. Thus, Tactics allows a school or district to create its own beginning framework for teaching thinking--a framework it can add to over time as it formally introduces additional thinking skills into its curriculum.

A. Purpose and Goals of Tactics for Thinking

The primary purpose of the program is to teach students the skills necessary to:

(1) become responsible for their own learning;
(2) learn academic content; and
(3) process information by applying higher order thinking skills.

Tactics divides thinking skills into three distinct groups: (a) learning-to-learn skills; (b) content thinking skills; and (c) reasoning skills. An instructional unit is provided for each thinking skill and includes the student objectives, suggested teacher strategies for introducing the skill, classroom examples of how to use the skill, and instructional implications of integrating the skill into the curriculum.

B. Contribution to Mainstreaming

Tactics was developed for general education students, but has been found to be appropriate and beneficial for students with special needs, e.g., students with disabilities, Chapter 1. In particular, the nature of Tactics, which is to teach thinking skills and processes, provides students with the necessary tools for achieving within the general education curriculum. Teachers who have used Tactics with students who have special needs report increased general classroom success. In particular, these teachers have found the learning to learn and content thinking skills to be especially useful for students with learning problems. Tactics provides direct instruction in skills often found to be lacking in students with disabilities.

C. Development and Foundation

Tactics for Thinking, published in 1986 as a program for teaching thinking skills in K-12 classrooms, developed from a theoretical and research base. The program as originally conceived was meant to be a framework for teaching a wide range of thinking skills within content area classrooms.

The development of Tactics occurred in a four step process. First, the developers surveyed the literature on cognition, artificial intelligence, developmental psychology, information processing, and other cognate fields. The literature supported the notion of integrating a systematic approach to thinking skills into the daily interactions of teachers, students, and curricula, rather than teaching thinking as a separate course. Further, research and theory on cognition suggest that knowledge of an academic area is fluid and generative; consequently, students should develop thinking skills that help them identify contexts in which alternative answers are possible and to identify optional strategies for arriving at those answers. Thus, a comprehensive approach to improving thinking skills emphasizes the mastery of content, but does so by helping students organize and process content in a generative way. Tactics was designed to do just that.

The next step in the development process was to translate research and theory into instructional strategies. A set of instructional practices was developed for each of the cognate areas. In those instances where classroom application of theory and research was difficult, the theory or research findings were dropped. The instructional strategies were then field tested to determine teacher acceptance and response. Teachers from various grade levels reviewed the strategies and offered suggestions for how they might be improved to increase classroom effectiveness.

Following teacher review, the strategies that survived were organized to fit the overall conceptual framework--unifying theory of cognition which housed all strategies. At this stage in the program's development, some of the strategies that survived the field test did not fit the conceptual framework and they too were dropped. The strategies that survived all levels of review became the Tactics for Thinking program.

At the core of the Tactics approach is a unitary model of cognition (Anderson, 1983), which holds that all higher cognitive processes, such as memory, language, problem solving, imagery, deduction, and induction, are different manifestations of the same underlying system. Expanding on this unitary model of thinking, the Tactics model synthesizes cognitive research around three interactive elements: (1) learning-to-learn; (2) content thinking; (3) reasoning.

The conscious effort to control the content thinking and reasoning functions is called "learning-to-learn". Learning-to-learn skills include: attending; setting goals; monitoring attitudes; and self-evaluating one's own thinking processes.

Content thinking represents three types of memory: declarative knowledge (information about the world); procedural knowledge (knowledge of how to do things); and contextual knowledge (knowledge about the conditions under which it is appropriate to carry out a specific procedure). A student needs all three types of knowledge to master curriculum content. In the absence of any three of these elements, the student will not be successful.

Reasoning is the process by which one integrates the three elements of content thinking. The three necessary elements of reasoning are: transferring (storage and retrieval of declarative, procedural, and contextual knowledge); matching these elements to what is already known (such skills include categorizing, reasoning analogically, extrapolating, evaluating evidence, and evaluating value); and restructuring or producing new knowledge (such skills include elaborating, problem solving, and inventing).

D. Key Principles Upon Which Tactics is Based

Tactics is based on three assumptions. First, the teaching of thinking should be overt, teacher-directed, and part of regular classroom instruction. Students are explicitly taught processes for 22 specific cognitive operations addressed in Tactics. Teachers are encouraged to teach and refer to the individual tactics by name when used in classrooms. Further, these 22 tactics are meant to be taught and reinforced within the regular content-area curriculum as a "way of teaching content." As Marzano and Arredondo (1986) point out in the Tactic's Teacher's Manual:

> "A basic assumption of this program [Tactics] is that you cannot separate the teaching of thinking from the teaching of content. You must practice thinking about something: classroom content is that 'something'." (p.1)

This assumption led the developers to conclude that as a result of teaching the thinking skills contained in the Tactics program, students' knowledge of content will improve.

The second assumption is that to a large extent, successful students have acquired essential cognitive skills outside of the explicit curriculum. That is, students who are successful in school either acquired the necessary thinking skills from their home environment or they learned them on their own (Marzano and Arredondo, 1986). The majority of students who do not experience success in school, probably have not acquired the essential cognitive skills and must be taught them. Tactics provides the basis for such instruction.

The third assumption of the Tactics program is that the direct teaching of thinking skills within formal education will necessitate a change in or restructuring of curriculum, instruction, and assessment techniques. The implementation of Tactics requires educators to examine existing practice and beliefs about what is being taught (content), how it is being taught (instruction), and how it is being assessed. Because the focus of Tactics is on developing the thinking skills of students, educators need to focus less on nongeneralizable, factual knowledge and more on knowledge inquiry and application. Teachers must also demonstrate (model) how to integrate new information with old information and how to apply thinking skills to new situations.

II. TACTICS DESCRIPTION

A. Description of Tactic's Components and Procedures

Tactics is a program designed to teach and reinforce specific cognitive operations (thinking skills) that aid in the processing, retention, and extension of content-specific information. Tactics divides these thinking skills into three general areas: learning-to-learn skills; content thinking skills; and reasoning skills. For each skill area, specific tactics have been developed to teach individual skills.

1. Learning-to-Learn Skills

Six tactics have been identified to teach general learning skills that apply to all tasks--school and non-school related. Students who have mastered the skills addressed by the tactics can use them in almost any learning situation. The primary focus of these tactics is to provide students with the tools needed for them to become responsible for their own learning. Following is a brief description of each tactic.

- Attention Control is a tactic for monitoring and consciously controlling your level of attention.
- Deep Processing is a tactic for generating mental pictures, sensations, emotions, and linguistic information about the subject of a thought.
- The Memory Framework tactic helps students associate information so that it can be more efficiently retrieved.
- Power Thinking is a tactic for consciously controlling your attitudes and beliefs to optimize a learning situation.
- Goal Setting is a tactic for specifying the direction you want to set for yourself and monitoring progress in that direction.
- Responsibility Frame is a tactic that provides students with the necessary awarenesses and strategies to increase their performance on any task by taking responsibility for the essential elements of the task.

2. Content Thinking Skills

The content thinking skills are designed to increase students' ability to learn academic content. The six tactics included in this area are described below.

- Concept Attainment is a tactic of associating experience with a word commonly used to represent those experiences.

- Concept Development is a tactic for expanding a concept already attained by: (a) identifying the category to which it belongs, (b) giving an example of the concept, (c) identifying similar and dissimilar concepts, and (d) identifying the attributes of the concept.

- Pattern Recognition is a tactic for identifying organizational patterns in information you read or hear.

- Macro-Pattern Recognition is a tactic for identifying organizational patterns for large blocks of information, such as a chapter or entire book.

- Synthesizing is a tactic for restating a large amount of information in fewer words and is a direct application of Pattern Recognition.

- Proceduralizing is a tactic for breaking a complex process into its component parts and then systematically learning that process until it becomes automatic.

3. Reasoning Skills

Reasoning skills within Tactics are those commonly considered higher-order thinking skills in other programs. The purpose of reasoning skills is to provide students with the tools for performing well at academic tasks not necessarily related to particular content areas. In general, the first six tactics require students to match information of one sort with information of another sort, and the remaining four skills require students to create new information or drastically restructure old information.

- Analogical Reasoning is a tactic for identifying how one set of concepts has similar relationships to those found in another set of concepts.

- Extrapolation is a tactic for determining how a generalized pattern from one piece of information can fit information from a different context.

- Evaluation of Evidence is a tactic for determining whether an unusual claim is substantiated or unsubstantiated.

- Examination of Value is a tactic for determining the value weight (e.g., positive, negative, or neutral value an individual places on specific information) associated with information, analyzing the assumptions underlying that value, and identifying another set of assumptions that would yield a different value weight.

- Decision Making is a tactic for systematically selecting from among alternatives.

- Recognizing Non-Linguistic Patterns is a tactic used to aid recognition and creation of numeric, spatial, and sensory patterns.

- Elaboration is a tactic for inferring information that is not stated.

- Solving Everyday Problems is a tactic for systematically attacking problems faced in everyday life.

- Academic Problem Solving is actually a set of tactics for solving different types of school-related problems--science, mathematics, ill-defined, constraining condition, and unusual context problems.

- Invention is a tactic for creating a new product.

For each tactic the Teacher's Manual provides: student objectives, background information, why the tactic is important to teach, when the tactic can be used (i.e., in what situations or under what conditions), a sample strategy for introducing the tactic, and classroom examples for review and reinforcement of the tactic.

III. TACTICS IMPLEMENTATION

A. Tactics in Action

Unless one was familiar with the Tactics program, he/she would not necessarily note at first any differences with a teacher's instructional presentation. This is due to the fact that Tactics becomes just another good teaching technique that teachers use in teaching curriculum content to students. Following are examples of what you might see.

The resource room teacher begins a review of long division using problems from the previous day's homework. The teacher engages the students in reviewing the strategies necessary to complete long division, and refers to the process as proceduralization (a tactic)--(1) can x go into y; (2) estimate; (3) multiply; (4) subtract; (4) bring down; (6) repeat #1 and respond to questions in a way which demonstrates their knowledge and understanding of the proceduralization tactic. Throughout the lesson the teacher reminds the students to use power thinking--"I can," "I will"--and the responsibility frame, which in this case was responsibility for class participation and completion of homework assignments. In closing the class period the teacher asks the students how they have used this week's "tactic of the week" outside of class. This week's tactic is goal setting and students relate situations in which they have set and attained goals (e.g., to complete homework assignment).

In another classroom for primary-aged students (grades 2-4), the teacher is introducing a lesson on rain. She uses a "whole language" approach to language arts instruction. She asks the 13 students to "deep process" rain. Although some students need teacher cueing to stay on task, the majority follow through with the tactic. The teacher then asks them to report all of the ways they think/feel about rain: "angry, mad"; "sad because I couldn't go outside"; "I like my raincoat"; etc. The teacher writes their thoughts about rain on the flip chart. Through the discussion, the teacher gains a good idea of the students' knowledge base and vocabulary with regard to rain, and gets them thinking about rain. She then reads a story about rain.

Down the hall the entire class of first grade students has gathered on the floor in the front of the room for a story. The teacher begins by asking the students to get ready to listen--How do we get our brains ready? The students share things that they should do (e.g., keep our hands in our lap; look at the teacher). The teacher then reads a story that contains several linguistic patterns (all the character's names begin with 'L'; the same phrase is repeated throughout). The teacher points out some of the patterns and the students identify others. The tactic being addressed is Pattern Generalization. Following the story the teacher uses the Deep Processing tactic, asking students to close their eyes and think about all the things that mom's do (the story was about Mother's Day). She asks them to think of patterns. The students then share their ideas as a class and later work on an independent activity--writing about their mothers.

B. Participant Roles

1. Students

Students are expected to learn and use the tactics. As students master the tactics they are expected to apply them on their own in a variety of situations.

2. Teachers

Tactics strongly emphasizes the role of the teacher in introducing and reinforcing the tactics. Each tactic must be directly and overtly taught. Tactics does not rely on materials such as books or paper-and-pencil exercises rather, Tactics relies on the teacher's interaction with students about content. Thus, teachers must incorporate the tactics into their academic content lessons. As noted previously, the decision to implement Tactics requires teachers to confront basic beliefs and values about what is taught, how it is taught, and how it is assessed. There must be less reliance on teaching factual knowledge and an increased emphasis on how to integrate information and apply it to new situations.

3. Administrators

The role of administrators is primarily that of supporting implementation. If Tactics is to be implemented on a school- or district-wide basis, then administrators must coordinate the process of determining where and when specific tactics will be implemented. Also, given that the teaching of tactics will require time, administrators must also authorize teachers to spend curricula time in this way.

Additionally, administrators must support the transfer of training and keeping Tactics in the forefront by providing support for implementation through such activities as peer coaching, teacher support/planning groups, or ongoing training. Teachers who have received training have found it helpful to have a colleague assist them in applying the tactics in their classroom.

4. Parents/Community

Parents should be informed of the introduction of Tactics into the curriculum. One school reported involving parents at the beginning of each school year through the establishment of annual goals for their children (goal setting tactic).

It should be noted that there have been a few isolated incidents where a community chose not to teach a particular tactic, such as deep processing. This measure was taken to avoid a possible conflict with fundamental religious beliefs represented in the community. Thus, it may be important to consider community values and perceptions when considering Tactics for possible implementation.

C. Implementation Requirements

1. Planning

Initial implementation of Tactics requires that plans be developed for training--how, when, who. It is recommended that plans be developed to spread the training out over the school year so that the program can be introduced in pieces and so that teachers have opportunities for practice and follow-up.

Tactics requires a commitment from teachers to learn the specific thinking skills or tactics. Once learned, it will take time to determine where they best fit within the curriculum. Teachers need planning time to integrate the tactics into their teaching units. One teacher who has been using Tactics for two years reported that she first plans her content lesson and then reviews the tactics to determine which one(s) can be incorporated into the content lesson. She then plans how she will introduce/review the tactic(s) for the students.

As Tactics is an instructional model that supports the delivery of instruction, planning is ongoing in the sense that teachers will need time to continually expand and revise their lessons to reflect the inclusion of specific learning skills or tactics.

Follow-up or on-the-job support in the form of peer coaching has been found to increase the ease and extent with which teachers implement the Tactics into their classrooms. Development of a plan for providing follow-up support to teachers is essential to the successful implementation of the program.

2. Training

Formal training in Tactics is not required (a Teacher's Manual may be purchased for $12.00 - 1991-92 price) but it is strongly recommended. Several options for training exist. A school or district could bring in a Tactics trainer to train groups of up to 100 teachers. A second option is to send teachers to a regional training offered periodically through the Association of Supervision and Curriculum Development (ASCD). A third option is to train a core group of teachers under either of the first two options and have those teachers provide training to others in the school or district. Training under options one and two generally requires up to four days (1 day for the learning-to-learn skills, 1 day for the content thinking skills, and 2 days for the reasoning skills). In 1990, a trainer's daily fee ranged from $350 to $800, plus travel and per diem. Regional ASCD sponsored training cost $300 per participant in 1990 plus travel and per diem for the trainees. Training under option three can vary according to the needs and desires of the participants, but is considered by the developers to be the most desirable option. These in-district trainers can provide relatively low cost training within the already established staff development delivery system of a district or school. For example, one school visited has developed an after school Tactics in-service that extends over an entire school year. Spreading training over the entire year provides participants with sufficient opportunities for practice and follow-up. A Tactics Trainer's Manual costs $35 (1991-92 price). The Training Manual contains training notes for Tactics and a set of overhead transparencies.

In addition to the Teacher and Trainer Manuals, a set of videotapes is available to supplement training. The videotapes feature Dr. Marzano presenting the 22 tactics.

3. Staffing

No additional staff are needed to implement the program. However, as Tactics does require substantial staff development and planning, some compensation for teachers might be necessary. Some schools have compensated teachers for training and planning time with paid release time, overtime pay, and tuition payments. One school relies on interns from the local university to free teachers for planning.

4. Facilities

No special facilities are required.

5. Curriculum, Equipment, Materials, and Supplies

Initially Tactics requires an addition to existing curricula as each tactic must be directly taught. Once the tactics have been mastered, they are infused into all curriculum instruction. As Tactics is intended to support the curriculum, no changes in curriculum content are expected.

Although special materials are not necessary to teach tactics, "Student Activities Blackline Masters" are available from the Association for Supervision and Curriculum Development. The Blackline Masters are reproducible student lesson worksheets that can be used to reinforce/practice the tactics. The Blackline Masters are included in two Activity Books. In 1990 these Activity Books--one for elementary students and one for middle/secondary students--cost $89.95 each. Copyright restrictions limit reproduction of Blackline Masters to a single school so each participating school would have to purchase its own set.

6. Classroom Arrangement

No special groupings or classroom organization are necessary.

7. School and District Organization

Tactics does not require changes in school or district organization.

IV. MONITORING IMPLEMENTATION OF TACTICS

A. Students, Classroom, and Building-Level Outcomes

No evaluation measures are provided. Effectiveness of the program at the classroom level is generally measured by improved student learning gains. No evaluation measures are provided. Teachers using the Tactics program who were interviewed about their experiences with it reported that they relied most on observation of student behavior to evaluate whether or not students had acquired/mastered the tactics.

B. Overall Program Implementation

In the case where an individual teacher implements Tactics, formal monitoring does not occur. Where the district might engage in more formal monitoring is when Tactics has been adopted across the district. In this case, an evaluation of student performance and teacher satisfaction are generally considered. For example, one visited district had surveyed teachers to determine program satisfaction, extent of use, and need for additional training.

V. EVIDENCE OF EFFECTIVENESS

A. Field Testing

During the development phase of Tactics for Thinking the developers conducted a field test of the program's components to determine teacher acceptance (Marzano, 1986). Seventy seven teachers from four sites (one large suburban, one small rural, one large rural school district, plus one school in a nonspecified district) participated in the field-test. Data collection occurred between training sessions. Teachers developed their own tests and compiled anecdotal summaries of their observations of student progress in acquiring the skills taught through Tactics. Results demonstrated that all "skills involved in the program produced measurable effects in student behavior to one degree or another" (p. 19).

B. Effects of Tactics on Student Achievement

Several studies were undertaken which combined two or more of the tactics into an intervention for study. These studies focused on the effects of the tactics on student achievement as measured by standardized tests or student grades. Findings from three studies, reported in Marzano (1989) "Summary Report: Evaluations of the Tactics for Thinking Program" are summarized below.

- Detrick (1988) conducted a doctoral dissertation which sought to determine the extent to which teachers' instructional behaviors would change as a result of training in the Tactics program, and the extent to which students' scores on standardized tests would be affected by instruction in Tactics. The affluent community that Detrick studied was experiencing relatively low standard achievement scores.

  Subjects included 6 volunteers from grades 1, 3, 4, and 6 in one district school. The control group was chosen from non-participating classes in the same school building. After training, subjects chose seven tactics for implementation in their classes: attention control, deep processing, concept attainment, pattern recognition, analogical reasoning, nonlinguistic patterns, and solving academic problems.

  At the end of the seven-month intervention period, students in the experimental and control groups were tested using the Iowa Test of basic Skills. Results showed that the experimental group outgained the control group in the fourth and sixth grades; the control group outgained the experimental group in the third grade. The results imply that the general information processing skills presented in the Tactics program transfer to the tasks within a standardized test.

- In the second study, five tactics were selected for primary emphasis in the study: power thinking, deep processing, concept attainment, concept development, and pattern recognition. These tactics were taught to a team of 50 staff developers charged with training district teachers in their use.

All 10,000 students in the district were considered as subjects, even though all teachers did not implement the program. The Stanford Achievement Test, Form G was the unit of measurement.

Gain scores using Normal Curve Equivalents (NCEs were calculated for selected subjects within the district using the previous year's scores as a base. Scores on the complete Battery and Basic Battery both rose significantly, as did NCE scores in Total Reading, Math, and Language. Scores also significantly increased on word study skills, reading comprehension, vocabulary, concept of numbers, math computations, math applications, language, social science, and environment. The results suggest that the Tactics are useful strategies for helping students process domain-specific information of the type that appears on standardized tests.

- In the third study, the 22 tactics were presented to 34 freshman college students in a study skills course over a ten week period. At the end of the course, students were administered a questionnaire in which they rated the Tactics program. The vast majority of students rated the tactics as helpful to their thinking and useful in processing information in other courses.

C. Effect of Individual Tactics

Studies have been undertaken to test the hypothesized effect of individual tactics. Studies were conducted for 17 of the 22 tactics. Overall, the studies reported were conducted as part of trainings in the Tactics program. The trainings were presented in 4-5 days, spaced from one to four weeks apart.

- Attention Control: Two studies were reported. In the first study, 48 third graders were chosen as subjects, and in the second study 25 high school students were chosen. Engagement rates for both groups were assessed. The mean engagement rates for the experimental groups were significantly higher than that for the control group.

- Deep Processing: Three studies were reported, with subjects representing 21 third grade students, 43 sixth grade students, and 51 eleventh grade students. The combined results of the three studies suggest that the deep processing tactic improves subjects' abilities to store and retain information. One study indicated that the effects of the process are enhanced over time.

- Power Thinking: Three studies were reported with subjects representing 41 third grade students, 57 seventh grade students, and 31 ninth grade students. The results of the three studies suggest that the power thinking tactic can increase student's sense of efficacy and control and transfer to increased student achievement.

- Goal Setting: Two studies were reported, with subjects representing 25 fifth grade students, and 63 ninth grade students. The results of the two studies suggest that the goal setting tactic positively affects students' abilities to set and attain relatively long-term goals.

- Concept Attainment and Concept Development: Three studies were reported, with subjects representing 27 third graders, 53 seventh graders, and 42 tenth graders. The combined results of the studies with the third and seventh graders indicate that the concept attainment tactic facilitates and improves retention of information about new concepts from specific content areas. The study with the tenth graders indicated that the concept development tactic provides for in-depth understanding of studies concepts.

- Pattern Recognition: Three studies were reported, with subjects representing nine third grade students, 45 sixth grade students, and 54 tenth grade students. All three studies suggest that the pattern recognition tactic helps students organize information in such a way that it is comprehended and recalled better than without the use of the tactic.

- Synthesizing: Two studies were reported, with subjects representing 35 sixth grade students, and 61 tenth grade students. Both studies indicate that the synthesizing tactic helps students recognize and summarize important information.

- Proceduralizing: One study was reported, with subjects representing 48 ninth grade students. The results of the study suggest that the proceduralizing tactic increases student awareness of the procedural knowledge to which it is applied and increases performance on that procedure.

- Analogical Reasoning: One study focusing on 41 ninth grade students was reported. The results of the study suggest that once students are presented with the tactic for solving analogies, they can better understand and, therefore, construct and explain analogies.

- Extrapolation: Three studies were reported, with subjects representing 24 fourth graders, 47 seventh graders, and 57 tenth graders. All three studies indicate that the extrapolation tactic improves students' abilities to discern and articulate abstract relationships between concepts.

- Evaluation of Evidence: Two studies were reported, with subjects representing 25 tenth grade students, and 7 eighth grade students. Both studies indicated an increase in students' abilities to analyze the validity of a persuasive argument after the introduction of the evaluation of evidence tactic.

- Examination of Value: Two studies were reported, with subjects representing 11 ninth grade students, and 45 eleventh grade students. Both studies indicate an increase in students' abilities to identify and describe their own and opposing positions relative to a specific statement.

- Decision Making: Two studies were reported, with subjects representing 54 tenth grade students and 13 tenth grade students. Both studies indicate that the students experienced an increase in ability to make systematic decisions and describe the logic of their decision-making processes after introduction of the tactic.

- Elaboration: One study was reported, in which the subjects were 25 sixth grade students. The results of the study indicate an increased ability on the part of students to make and describe the rationale behind characteristic inferences about concepts and causal inferences about events.

- Nonlinguistic Pattern Recognition: One study involving 12 seventh and eighth grade students was reported. The study suggests that the tactic increased students' abilities to solve numeric series and figural problems.

- Everyday Problem Solving: One study involving 15 eighth graders was reported. The results of the study indicated an increased awareness of the general problem-solving heuristics on the part of students and an ability to apply these heuristics to hypothetical problem situations as a result of exposure to the problem-solving tactic.

VI. SOURCES OF ADDITIONAL INFORMATION

Additional information and materials about Tactics are available from:

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MCREL
12500 East Iliff, Suite 201
Aurora, CO 80014
(303) 337-0990

Association for Supervision and Curriculum Development
1250 N. Pitt St.
Alexandria, VA 22314
(703) 549-9110

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DIRECT INSTRUCTION

Developed by S. Englemann, W.C. Becker, and D. Carnine

General Description: Direct Instruction (DI) is a comprehensive system of classroom organization, course content, and teaching techniques. It is a complete curriculum for a subject area(s)--not a supplement for an existing curriculum. DI is designed to:

- Teach academic content, higher order thinking skills, and survival skills in a variety of subject areas (e.g., reading, language, and mathematics).
- Enable students to learn more efficiently than with traditional methods of instruction.
- Elicit a high level of student participation.
- Ensure high rates of student success.
- Increase students' self-concept, persistence, inquisitiveness, responsibility, and risk taking.

It focuses on the "big ideas" in academic areas and the linkages among important concepts, emphasizes the learning of strategies (instead of facts), and is characterized by: scripted and highly structured presentation of lessons by teachers; teacher-directed instruction that shifts to student-directed independent learning as students master content; when feasible, instruction to small groups of students who are homogeneously grouped within the classroom by performance levels; and careful training and supervision of teachers.

Target Population: Students of all levels of achievement from a pre-kindergarten to post-college, including those with learning disabilities and other mild or moderate disabilities. It has also been used with students who have severe disabilities or are bilingual.

Implementation Considerations: Classrooms are teacher-directed and business-like. Teachers must be highly organized, use their time efficiently, and, at first, rigorously follow the DI instructional approach and script. Supervisors and teachers require 1 to 5 days of initial training, depending upon their individual needs and skills. An additional 1-3 days of ongoing in-service is recommended during each of the first two years. Parents are encouraged to support and supplement DI at home.

Program Effectiveness: A number of basic behavioral research and special studies have evaluated DI curricula and associated teaching techniques. These studies report a range of evidence in support of DI's programming, teacher-directed group instruction, basic classroom structure, and effectiveness in improving academic and higher order thinking skills, and social and personal competence in both high- and low-achieving students--including those with special needs.

Costs: Major cost items are materials, staff training, a supervisor for every 50-100 DI teachers, and one classroom aide in grades K and one. In 1990 the cost of an initial set of materials was about $500 per classroom, while replacement costs for the consumable items varied from $90 to $245 by grade level and type of materials. In 1990 a trainer's daily fee was about $300, plus travel expenses.

DIRECT INSTRUCTION MODEL

Developed by Siegfried Englemann, Wesley C. Becker, and Douglas Carnine

I. INTRODUCTION

Direct Instruction (DI) is a comprehensive system that covers all aspects of instruction--from classroom organization and management to the quality of teacher-student interactions and the design of curriculum materials (Gersten, Woodward, and Darch, 1986). This system of instruction is based on the belief that, under the optimal conditions of DI, within- classroom variation of student learning is reduced by dramatically improving the performance of the lowest students.

DI is designed to teach academic skills in one or more of a variety of subject areas (e.g., reading, language [including spelling and/or writing] and mathematics), as well as basic survival skills. It is used to teach both high-level and low-level academic skills, and it includes developmental and corrective programs. It is designed to be a complete curriculum in the subject area(s) in which it is implemented, rather than to supplement an existing curriculum (or curricula).

Though DI is used more extensively in the primary grades than in the higher grades, it has been used with students from pre-kindergarten to post-college. It is frequently used in general education classrooms (particularly those that serve large numbers of low performing students, e.g., Chapter I), as well as in special education classes serving students with learning disabilities and other mild/moderate disabilities. It is recommended for use to a lesser extent with students who have severe disabilities.

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A. Purpose and Goals of Direct Instruction

The primary purpose of DI is to allow students to learn more efficiently than with traditional methods of instruction, i.e., learn more in less time. It is designed to elicit a high level of student participation and to ensure high rates of student success. DI has been implemented most frequently in reading, where even low-performing students are expected to achieve at or above grade level (50th percentile) on standardized tests. Expectations are similar for other academic areas, e.g., mathematics, language arts, and writing. DI developers have also stated such achievement-related goals as increasing students' self-concept, persistence, inquisitiveness, responsibility, and risk taking.

B. Contribution to Mainstreaming

DI can be used with mainstreamed students in general education classes and with students in other types of classes, including special education classes. In reading, students are taught in small homogeneous groups, the size of which depends upon the performance levels of the students. Lower performing students in the lower grades should be taught in smaller groups (2-3 students), while higher performing students can be taught in larger groups (12-15). These are flexible ability groups, not groups used for tracking, and students should be moved among groups as skill level and achievement changes. Math and language arts are typically taught to the entire class. The instruction received by the students in DI classrooms is highly structured, and research evidence indicates that many students with special learning needs benefit from this type of instruction. The involvement of students with disabilities in DI classrooms can be easily documented on IEPs.

C. Development and Foundation

The development of DI grew out of the concern that what teachers were teaching and doing in most schools was appropriate for many middle-class students, but not for low-achieving students. The authors of DI were also concerned with the amount of time that was wasted in most classrooms. Thus, DI consists of materials, teaching techniques, and a management system that make classroom teaching and learning efficient and effective (Becker, Engelmann, Carnine, and Rhine, 1981).

The materials and procedures are based on a small number of principles that are applied very systematically. As Gersten et al. (1986) have stated, "the cornerstone of Direct Instruction is the systematic, explicit teaching of academic strategies to students." The content is logically derived, logically sequenced, and systematically presented. Roehler and Duffy (1984) have stated that DI emphasizes instructional time and student opportunity to learn. Therefore, they claim that DI results in the efficient management of materials, activities, and pupils. All agree that DI is a comprehensive system of instruction that includes both the content to be taught and the teaching techniques to be used.

The current DI model is built upon two basic premises: (1) the rate and quality of children's learning in the classroom is a function of environmental events; and (2) educators can increase the amount of learning in the classroom by carefully engineering the details of students' interaction with that environment (Becker et al., 1981). DI is the product of the systematic application of empirical behavior theory, logical analysis of concepts and tasks, and the logical analysis of the use of resources in the classroom.

Curricula are constructed and teaching strategies are planned on the basis of a logical analysis of the content and the environment. However, the real research basis of DI is the day-to-day empirical field testing that takes place. Decisions about whether or not the curriculum and teaching techniques are kept in tact, discarded, or modified are made on the basis of the results of such empirical field testing. For this reason, the development of curricula stays only a few days ahead of field testing. Since the initial development of the Direct Instruction Follow-Through Model, the materials and the teaching techniques have continued to be evaluated and refined, and new DI curricula have been, and continue to be, developed. The name of the well-known DI reading program, DISTAR, has been changed to Reading Mastery. In recent years there has been an increasing emphasis placed on higher level learning outcomes -- learning strategies, problem-solving skills, and the "sameness" in past and present learning.

Other changes have also occurred as funding for the National Follow-Through Program has been reduced. Generally, these changes have made DI more economical to implement. For example, it is now used with larger groups of students and requires fewer support personnel.

D. Key Principles Upon Which Direct Instruction is Based

Listed below are the key principles and ideas underlying the development of the DI Program.

- Students learn more when the content to be taught is carefully analyzed to identify the "big ideas," which are the basis of critical thinking. The essential components of the "big ideas" are taught to, and mastered by, the students.

- Students learn more when the content to be taught is carefully sequenced. Sequencing based on the structure of the content is a way of ensuring that prerequisite skills are taught before superordinate skills, and that linkages among important concepts are made explicit.
- Students learn more when they are taught reading in homogeneous groups. Students with similar needs are taught together in groups that range from as few as two or three students to as many as 15. Students with greater academic needs are taught in smaller groups. As noted earlier, instruction in math and language is usually provided to the entire class.
- Students learn more when they are taught by highly structured methods. Teaching in the DI Program is highly codified, and the role of the teacher is described explicitly. This principle applies to all types and levels of learning, simple low-level outcomes to highly complex outcomes.
- Students learn more when they are on-task and highly engaged in the teaching-learning process. It is because of this principle that students are prompted to respond frequently during instruction.
- Students learn more when they experience high rates of success on a regular basis. Thus, students are monitored to ensure that at least 85 percent of their individual responses and at least 75 percent of their group responses are correct.
- Students learn more when their work is checked promptly. This makes it possible to provide the students with immediate feedback and prevent them from advancing to the next task before they are ready.
- Students learn more when teachers make many more positive than negative statements to them. In DI, it is suggested that teachers should make four times as many positive as negative statements--a ratio that is thought to have a positive effect on the motivation of students.

II. DIRECT INSTRUCTION DESCRIPTION

According to Becker et al. (1981), DI has the following eight components: (a) a focus on academic objectives; (b) additional teachers in the classroom; (c) structured use of time; (d) scripted presentation of lessons; (e) efficient teaching methods; (f) careful training and supervision; (g) monitoring of progress; and (h) active parent involvement.

A. Focus On Academic Objectives

Until recent years, the focus on academic objectives of the DI program was targeted toward the acquisition of basic and higher order skills by low-performing students in three curriculum areas: reading, mathematics, and language (including spelling and writing). The DI curriculum, e.g., Reading Mastery, formed the core of the program and was designed to be used with the highly refined teaching techniques. Decoding, comprehension, learning math concepts and operations, language production, and understanding causality were primary foci. Newer DI curricula in such areas as high school mathematics and computer programming also emphasize higher level learning outcomes. However, all DI curricula are the product of the rigorous analysis of the content to be taught, and much emphasis is placed on exactly how the curriculum should be constructed. Development of the curriculum is based on a few simple principles that are applied systematically:

- Whenever possible, "big ideas" (i.e., core concepts) are taught.
- The emphasis is on strategy learning, not facts learning.
- Students should learn the smallest number of strategies that will have the broadest possible application.

The curriculum is also designed to make learning as simple as possible for students. For example, when students are learning concepts and rules, they are initially taught only rules that work all the time. After students have learned the concepts and rules well, then exceptions are presented. The basic belief is that learning is most efficient if students learn basic rules until they are confident and their responses are automatic before being introduced to exceptions. This contrived content is very carefully sequenced. Instruction is designed to ensure that prerequisites are acquired before new content is introduced.

B. Additional Teachers

Additional adults in the classroom make it possible for two to three groups to receive instruction simultaneously and allow student progress to be continually monitored. Classroom paraprofessionals are often trained to perform teaching activities. Although paraprofessionals in DI are desirable, especially in the early grades (K-1), they are not essential.

C. Structured Use of Time

The structured use of time involves planned organizational techniques to ensure that effective instruction occurs in the DI classroom. Activities are scheduled so that students rotate through subject areas, seat work, and cooperative learning activities/projects.

D. Scripted Presentation

Scripted presentation of lessons is an important DI component because it provides teachers with the objectives of the lesson, background knowledge, directions, sequences of examples, and sequences of subskills and wordings to use during instruction. The presentations used by teachers are standardized to allow replication of success from the field testing. The scripts also make teacher training easier to conduct and supervision less time consuming. After teachers have used a DI program, the scripts are used more as guides and are not followed religiously.

E. Efficient Teaching Methods

DI teaching methods are based on behavioral principles and resource utilization logic to increase teaching efficiency and student time on task. The methods include small-group instruction (when possible), reinforcement techniques and correction procedures, and teaching every student by giving added attention to the lower performing students. According to Becker (1984), "the central visible features of Direct Instruction are small-group instruction, with active participation by the students, as teachers and paraprofessionals follow scripts in an active, participation-oriented classroom." Although these are the most visible features, they may not be the most important ones. DI is built around the rule, "Teach more in less time." A wide range of procedures is used to help students learn more in less time.

F. Training and Supervision

The training and supervision component can be accomplished through a one- to five-day workshop, continuing in-service sessions of about 1-3 days per year, and classroom supervision. Workshops and in-service sessions involve practice teaching in which teachers take turns playing the roles of student and teacher. Videotaped illustrations of correct DI procedures, as well as courses about basic DI principles, are also included in training. DI requires the use of supervisors who spend most of their time in classrooms and monitor all phases of implementation.

G. Monitoring of Progress

Supervisors also help monitor the progress of DI. Biweekly or monthly reports of teaching activities and results from student criterion-referenced tests are used as outcome measures of student progress.

H. Active Parent Involvement

Parents are actively involved as paraprofessionals in the program in a variety of ways, e.g., as teacher aides, continuous progress testers, and "home teachers" who use home practice books to help their children complete learning activities that support their DI classroom instruction. In addition, parent workers also use a programmed text to train other parents in the area of positive child management skills.

III. DIRECT INSTRUCTION IMPLEMENTATION

A. The Program in Action[1]

You are visiting a fifth-grade class where the teacher is using Reading Mastery materials to teach reading to her students. The focus of reading instruction in the fifth grade, as well as in the sixth grade, is on literature. (The third and fourth grade levels of the program prepare students to read content material.) The teacher is working with a small group of nine, low-achieving students. The other 17 students in the class are doing independent seatwork (i.e., completing workbook lessons) under the supervision of a paraprofessional.

The nine students are seated directly in front of the teacher in a tight semi-circle, making it possible for the teacher to look directly at, and touch, each student. Each student has a small lapboard and a Reading Mastery Skillbook on his/her lap. Students also have a Reading Mastery Textbook and Reading Mastery Workbook under their seats. The teacher has a copy of a Reading Mastery Presentation Book in her hand and a stack of materials at her side.

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[1] This scenario is based on the information provided for Lesson 28 in the Reading Mastery V Presentation Book "B"--Engelmann, Osborn, Osborn, and Zoref, 1983. It is considered to be representative of DI lessons presented to students in the intermediate grades.

An early exercise (Vocabulary Development) starts with the teacher saying, "Everybody, touch column 4." The teacher checks to be sure that everybody is touching the right place. "First you're going to read the words in column 4. Then we'll talk about them." "Touch under the first word." The teacher pauses for a moment and then says, "What word?" and gestures for a choral response. The students respond in unison, "Tiresome." This same procedure is followed for the rest of the words in column 4. Then the teacher says, "Now let's talk about what those words mean. Word 1 is tiresome. Things that are tiresome are very boring. Everybody, what do we call things that are very boring? After a brief pause, the teacher gestures, and the students respond in unison, "tiresome." A similar procedure is used to talk about the meaning of each of the words in column 4.

A later exercise (Main Idea Paragraphs) starts when the teacher says: "Everybody, find part B. Read the instructions and the first paragraph to yourselves. Then we'll work together and make up a main-idea sentence. Raise your hand when you've finished reading the paragraph." After all students have raised their hands, the teacher asks, "Who was the main character in that paragraph?" Students respond, "CLARA." The teacher says, "So I write CLARA as the first part of the sentence." The teacher writes CLARA on the chalkboard. Then she says, "Now tell me the main thing that Clara did. Don't tell where or when, just tell what she did." She calls on Antonia to answer the question. Antonia answers, and the teacher repeats her answer, "Bought a bike-repair tool kit." The teacher also says, "So, I write 'bought a bike-repair tool kit' as the next part of the sentence." The teacher writes this on the chalkboard after the word Clara. Essentially the same procedure is followed to make the main idea sentence more elaborate. A similar procedure was observed for the next exercise, Comprehension Passage.

The last exercise (Decoding and Comprehension) started with the teacher saying, "Everybody, look at page 275." After waiting a few seconds, the teacher asks Dorathea, "What's the error limit for this lesson?" Dorathea says, "11 errors," and the teacher repeats her answer. The teacher then tells the group about the story they will read today and about the author. The story includes many of the words that were included in the lists studied earlier. The teacher asks many questions that require individual students to pronounce the words and answer questions about the story.

The lesson ends with the teacher assigning all the items in the skillbook and workbook for lesson 28 as independent work. The students are expected to complete this work before the next day's class.

If an observer visited a different type of class with older students (for example, sixth grade mathematics),[2/] what the person would see would be very different from the above scenario. The mathematics content presented by the teacher would be organized so as to emphasize the relationships between the component parts rather than the solutions to the various problems. The similarities and sameness between and among tasks would be emphasized. The sameness between tasks would be noted explicitly, and common misunderstandings would be pointed out and corrected.

For example, if the teacher were using the DI approach to teach sixth grade students to find the volume of seven different figures (box, wedge, cylinder, pyramid-rectangular base, pyramid-triangle base, cone, and sphere), instruction would focus on a single equation, with slight variations, rather than on seven different equations. The teacher would stimulate recall of the equations for the area of common two dimensional figures. The teacher would point out that for figures that come to a point (pyramids and cones), the volume is 1/3 B x h, where b represents the area of the base of the figure and h represents its height. Spheres, it would be noted, come to two points and have a volume of 2 times 1/3 B x h, or 2/3 B x h. Emphasizing the sameness among these equations makes the relationships among them more explicit than when seven different equations are learned. Understanding the sameness among the equations is emphasized by the teacher.

Even in a sixth grade mathematics class with average ability students, the daily lessons presented by the teacher would be in script form, showing the teacher what to do and say in the frequent interchanges and examples that have been field tested and shown to enhance understanding. This approach saves the teacher the time necessary to generate explanations and examples in advance or in an impromptu manner in the classroom.

The above description of the sixth grade mathematics class is not meant to imply that the teacher simply reads a script. This is not the case. Teachers must exercise flexibility in using the scripts. They must continually make decisions about how to relate the new

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[2/] Sixth grade mathematics example is based on information contained in a paper written by Douglas Carnine, entitled, "Beyond Technique--Direct Instruction and Higher Order Skills."

content to the students' current understandings and misunderstandings. They must make decisions about how much explanation and how many examples are needed. They must also make decisions about what to do when some students have acquired the new skills and others have not.

If an observer visited just one sixth grade mathematics class that was using the DI approach, it would probably be difficult at first to distinguish it from more traditional classes. However, if several DI classes were visited, it would be noted that the instruction in the DI classes was more uniform, i.e., the same examples presented, a high level of student participation, and a repeated emphasis on understanding the linkages among the various concepts being learned.

B. Participant Roles

1. Students

Students are active participants in DI classrooms. The teacher solicits both group responses and individual responses from them. Some instruction takes place in small groups of to 15 students, depending on the ages and performance levels of the students. Other instruction is presented to the entire class. In addition to making many oral and written responses to the teacher's prompts, students also take many oral and written tests to verify that they have mastered the content of the lesson covered. As their performance improves, students become more independent learners and receive less instruction from the teacher. Students are expected to be on-task and paying attention at least 90 percent of the time. At least 95 percent of the students are expected to respond when group responses are solicited.

2. Teachers

DI requires a highly structured approach to teaching. Teachers must follow the DI instructional approach and accompanying script, and they must maintain a balance between mastery and curriculum coverage. They must be highly organized so as to use instructional time efficiently.

Initially, instruction is very teacher-directed and teacher-dominated. The teacher programs explicit strategies, emphasizing key words or points. As students master the content being taught, there is a shift from teacher-directed instruction to student-directed independent learning. The teacher moves from demonstrating what students will be doing, to presenting the content, directing student learning, and supervising independent student work. As students progress on specific learning tasks, teachers provide fewer cues and less instruction.

The pace of instruction is considered to be very important and is controlled by the teacher. When firming up newly learned strategies, first grade students will often be asked to make at least 10 responses per minute. The intent is for students to master the content so that they will have a high degree of confidence and their responses will be automatic. At least 75 percent of the group responses should be correct. With older students in such other subjects as mathematics and language arts, the rate of responding would not be as high, but there would continue to be an emphasis on active student participation for the purposes of making learning efficient and firm.

In addition to group responses, students are called upon to respond individually. A disproportionate number of the individual student responses should be made by low-performing students. It is reasonable to assume that if the low-performing students have mastered the strategies, then the higher-achieving students will also have mastered them. When students do written work, it should be checked for errors promptly.

As part of their training and ongoing supervision, teachers are observed and evaluated routinely. Administrators report that some teachers, as they gain experience with DI, tend to become careless in following the script and/or they relax their standards by introducing students to new materials before they have mastered the current material. Hence, even "experienced" teachers require ongoing in-service.

Beginning teachers often find comfort in the formal structure of DI. Some teachers reported being hesitant to adopt DI because of a fear that the regimented structure may stifle their creativity. However, most of these teachers become strong supporters after trying it and learning that it does not stifle their creativity.

3. Administrators

DI requires that supervisors play a major role during program implementation and use. They are responsible for ordering and distributing materials, supervising and assisting teachers and students, and coordinating all facets of the DI program. A large portion of the supervisor's time is spent in the classroom working with teachers and students. Additional time is used to monitor reports of student performance. Monitoring is considered to be a way of maintaining quality control in the DI Program. Desirably, the supervisor has responsibility for no more than 50 teachers and spends 75 percent of his or her time in the classroom (Becker et al., 1981).

4. Parents/Community

As previously stated, active parent involvement is a key consideration since parents can help their children complete learning activities at home that support and supplement DI.

C. Implementation Requirements

1. Planning

When DI is being considered, a needs assessment should be conducted to determine if the nature and purposes of DI fit the needs of the school and community. This assessment should be conducted several months prior to the planned implementation of DI. There also should be one day of group in-service training designed to make the administration and teaching faculty aware of DI components and philosophy. Preimplementation planning should address some of the common obstacles and barriers faced by those who have implemented the DI Program. All administrators should attend the initial orientation session, at which time administrative roles can be described.

When preparing for implementation, it is important to make teachers aware of the benefits of using DI and its implications for promoting higher-level thinking outcomes among students. They should become aware of such DI components as adherence to a specific instructional format, supervisory coaching, and accountability based on student test scores. There are often misconceptions about DI, such as that it inhibits teacher creativity, which should also be discussed during the planning stage.

Developers recommend that planning be conducted to solicit parent acceptance and involvement because parents play a key role in effective implementation of the DI program. It is recommended that school districts develop a parent handbook to inform parents about DI.

An ideal implementation plan (according to DI's developers) would be to implement DI only in kindergarten and first grade classes the first year. (The developers recommend that at least two teachers be involved in implementing DI in order to provide peer support.) The second year it would be used in kindergarten and first and second grade classes, continuing to serve students who entered kindergarten and first grade the previous year. Each year, the new kindergarten class would be added to those grades already using DI. This pattern, which can be continued until all grades in the school are using DI, would enable a longitudinal study of the results of DI. It is realized, however, that such a plan may not be practical for a school district desiring to introduce DI in a number of grade levels within a period of two or three years.

2. Training

The amount of training depends on the particular needs and skills of the teachers being trained. Between one and five days of training will likely be needed before the teachers can implement DI in their classes. It is estimated that a school district with 30 DI classrooms will need 10-30 days of consultation (varies depending upon the quality of teachers) from a person knowledgeable about DI during each of the first two years. (SRA offers regional training workshops for teachers and maintains a pool of DI trainers who are available to provide on-site training and consultation.) Part of this time can be used to provide for group in-service, while the remainder of it can be used to work with teachers in their individual classrooms. Some teachers will need more assistance than others. The important factor is not the amount of training received by teachers, but the ability of the teachers to demonstrate the skills that will be used with the children. All teachers must pass check-out tests that require them to demonstrate each and every required instructional skill.

It takes many teachers about two years to become proficient in using DI. During those two years, it is recommended that they receive some (one or two hours) in-service training each month. They may also need further assistance in their classrooms from supervisors.

Those providing training have found that what works best with students also works best with teachers (Gersten et al., 1986). Thus, the teachers' training is based on four major principles:

- Use training materials that are at the appropriate level of difficulty and systematically break large tasks into smaller components.
- Always recognize and praise appropriate performance and improvements, while providing suggestions or criticism in a constructive fashion.
- Observe in the classroom frequently so that teachers receive immediate feedback on the changes they attempt.
- When appropriate, actually program alternative teaching strategies in the classroom by taking over a group for a few minutes and providing a demonstration of successful teaching strategies.

The major costs associated with the implementation of DI are for materials, pre-service and in-service training, and one supervisor for every 50 teachers using DI, if possible. The costs of materials are discussed in subsection 5 below. The cost of conducting the needs assessment and awareness training will depend on the size of the school system and the cost of the person providing awareness training. Dr. Douglas Carnine (Co-Director of the DI Program Project, University of Oregon) estimates that a good "motivational" speaker (e.g., a DI user) for the awareness training program will cost between $400 and $500, plus travel and per diem (Carnine, personal interview on 7 April 1989). Names of motivational speakers are available from SRA.

The teachers will need one to five days of pre-service training before the beginning of the school year in which DI is to be implemented. After the initial training sessions, developers recommend that 1-3 days of ongoing in-service be available to teachers during each of the first two years of DI implementation. This ongoing in-service, much of which can be provided by the supervisor (in the classroom and while students are present), is needed to ensure that teachers have the support, resources, and training to continue to effectively use the DI teaching techniques. A consultant to conduct training will cost approximately $300 per day, plus expenses. Consultant assistance for in-service training for the first year will be between $3,000 and $9,000 (10-30 days of in-service training), depending on the needs of the school system. Each teacher will also need a DI Kit that will cost $245 per subject area.

3. Staffing

Most DI classrooms recommend both a teacher and a paraprofessional in kindergarten and first grade. The primary emphasis in the kindergarten and first grade classroom is on homogeneous ability grouping with students grouped by performance levels into three instructional groups within each classroom. Both the teacher and the paraprofessional, who is trained to perform DI teaching activities, work with students in small groups, where students respond at a high rate. Students are called upon to make individual responses and group responses. During initial instruction, nearly all student responses are prompted by the teacher or paraprofessional and students rarely interact among themselves as part of the instructional program. After initial instruction, students work in cooperative groups on a variety of projects.

Existing teachers can be trained to implement DI. If possible, however, a supervisor should be assigned from half to full-time for each 50 teachers. This person may constitute a new position and may need office space at a school or in the central office. If DI is being implemented in a number of schools, there will likely be local travel costs associated with the performance of the supervisor's duties.

4. Facilities

No additional or special facilities are needed to implement DI. The program can be implemented in virtually any classroom or school.

5. Curriculum, Equipment, Materials, and Supplies

DI is a complete curriculum for the relevant subject areas--it is not a supplement for an existing curriculum. A major change in instruction is required because the curriculum is presented using a highly structured format that consists of very specific step-by-step strategies that have been carefully articulated and field tested. A single format can be used to teach a set (or group) of similar strategies. For each particular lesson, there is a script that follows the general format. Teachers are expected to practice the script before using it with the students. Because teachers and paraprofessionals in DI classrooms follow specific teaching formats and use scripts for each lesson, they know exactly what to do when they teach, and students learn what to expect and how to respond.

Science Research Associates (SRA) publishes a variety of DI program materials, including teacher materials and student consumables, in reading, language, and mathematics. The cost of these materials varies widely by type of program. It is estimated that in 1990 the cost of an initial set of classroom materials was about $500 per classroom. This cost covers teacher manuals and student textbooks, workbooks, and skillbooks. The replacement cost for the consumable items after the first year will vary from $90 to $245 per classroom, depending on the number of subjects in which DI is being implemented.

The only additional equipment needed for kindergarten and first grade students in the DI program is a simple lapboard. This can be a small piece of plywood, masonite, plastic, or heavy cardboard. There are no unique equipment or facility needs for teachers (other than the DI kits noted above).

6. Classroom Arrangement

Students within a kindergarten, and first and second grade class are generally divided into three instructional groups for receiving instruction based on performance levels. The size of the group depends on the subject being taught and the age and performance level of the students. Students are grouped so that they can see the materials and so that the teacher has direct eye contact with all students. The lowest performing students in the group are generally seated directly in front of the teacher. When possible, all students should be seated close enough to the teacher that he or she can touch them.

7. School and District Organization

Except for the possibility of having to create a supervisory position for monitoring the DI program, the use of DI does not require organizational changes at the school building or district levels.

IV. MONITORING IMPLEMENTATION OF DIRECT INSTRUCTION

A. Student, Classroom, and Building-Level Outcomes

Evaluation is an integral part of the DI program. Informal evaluation is built into the formats and scripts that are used to teach the DI lessons. Student performance is assessed and recorded daily. More formal assessment occurs through publisher-supplied tests that are administered after each unit of 10 lessons has been completed. The teacher uses the results of these assessments to make instructional decisions and placement decisions (e.g., moving a student to a higher group or to a lower group). The supervisor also reviews test results regularly to determine if particular teachers or students are in need of assistance. This close monitoring is designed to prevent students from proceeding to the next lesson before they are ready to do so. In addition, the supervisor monitors how many lessons are taught each week to make sure progress is adequate.

B. Overall Program Outcomes

Because student outcomes are monitored frequently and consistently when using DI, it is relatively easy to determine how effectively the program is implemented and if system-wide goals are being met. In addition, the DI management system, which is an integral part of the program, allows administrators to be well informed of how the DI program is functioning within the school system. Use of standardized achievement tests also provide a good indication of overall DI outcomes.

V. EVIDENCE OF EFFECTIVENESS

Few, if any, instructional programs in the United States have been as thoroughly evaluated as DI. In addition to the field tests that are conducted to evaluate newly developed curricula and associated teaching techniques, several special studies have been conducted. These studies include:

- A series of evaluation studies conducted by the developers of DI, several of which were conducted from 1969 to 1973, using the Wide-Range Achievement Test and the Metropolitan Achievement Test.
- A National Evaluation of the Follow-Through Program that was conducted by Abt Associates of Cambridge, Massachusetts.
- A number of studies done by independent researchers around the world.

Becker (1984) identifies four kinds of studies that have produced findings that support DI: (a) basic behavioral research, (b) studies of effective teaching practices, (c) studies of design principles and specific teaching practices, and (d) studies of the outcomes of DI instruction. The results of a few of these studies are highlighted below to illustrate the range of evidence in support of DI. More extensive summaries of related research can be found in Woodward, 1985; Stebbins, St. Pierre, Proper, Anderson, and Cerva, 1977; House, Glass, McLean, and Walker, 1978; Lockery and Maggs, 1982; Baker and DeKanter, 1982; Becker, 1984; Weisberg, 1984; Lott, 1979; and Fabre, 1983.

A. Basic Behavior Research

The results of this group of studies, which are summarized in Becker (1984), emphasize the fact that differential reinforcement is critical to discrimination learning. This is important because the major portion of the "big idea" teaching that occurs in DI programs involves concept learning, which in turn is based on discrimination learning. In addition, experimental research findings support and validate DI programming and instructional strategies relative to analyzing the sameness and differences among examples of concepts, sequencing the concepts to be learned, and providing stimulus prompts.

B. Effective Teaching Practices

The results of this body of research generally confirm the value of teacher-directed group instruction and supports DI's basic classroom structure, which is teacher-directed. In DI, the teacher obtains the students' attention, presents instruction, gets lots of student responding, monitors the responding, and reinforces and corrects student responses as appropriate (Becker, 1984). Several studies support such important aspects of teacher behavior as pacing, signaling, praising, and correcting (Becker, 1984).

C. Design Principles

Several studies have been conducted that support the design principles for teaching rules (e.g., the use of both positive and negative examples), using transformation structures to help teach addition facts, using visual displays in teaching fact systems, and designing cognitive operations.

D. Outcomes of DI Instruction

A large number of studies have been conducted on the effectiveness of DI programs on a variety of regular and special populations including bilingual students. In general, most of the findings indicate that even low performers make regular progress when the DI program is used properly. The findings are least favorable in the areas of reading vocabulary, word meaning, and inferential comprehension; however, even in these areas, the results suggest an advantage to being in DI classes. (Gersten, et al., 1986). Findings from examples of a few of these studies are presented below.

Becker (1984) summarized more than 30 studies of the effectiveness of DI programs that have been conducted since 1972 on a variety of regular and special populations in Australia. The results of eight reported studies of the DISTAR Language program show that in all cases language competencies had been increased and, where tested, so had intelligence on the Stanford-Binet. Many high-risk children also showed substantial gains in language skills. These results imply that the gap between children with disabilities and those without disabilities can be narrowed using the DISTAR technology. The populations involved included children with moderate and severe retardation, cerebral palsy, and Downs' Syndrome, as well as students who were immigrants, disadvantaged and white, and aboriginal.

White (1988) conducted a meta-analysis of the effects of DI in special education. The meta-analysis included 25 experimental and quasi-experimental studies that compared the effects of DI with those of other intervention programs. The achievement outcomes included reading, math, language, spelling, writing, health, and social skills. Fifty-three percent of the outcome comparisons significantly favored the DI groups; whereas none significantly favored the comparison groups. Finally, Gersten, Brockway, and Nenaus (1983) examined the use of DI in bilingual settings using scores on the Comprehensive Test of Basic Skills (CTBS). They concluded that DI students scored higher than comparison students on Total Reading, Total Math, and Total Language.

VI. SOURCES OF ADDITIONAL INFORMATION

There are two major sources of information about, and technical assistance for, the implementation of DI. One is the staff of the project at the University of Oregon, where Dr. Douglas Carnine is Co-Director of the Direct Instruction Model Project. Dr. Carnine has been involved extensively over the past 20 years in the development and implementation of DI. Dr. Carnine's address is:

Douglas Carnine
Co-Director of the Direct Instruction Model Project
University of Oregon
805 Lincoln Street
Eugene, OR 97401
(503)485-1163

The second source is Karen Sorrentino, Science Research Associates (SRA). SRA publishes all of the DI materials, as well as related training tapes, guides, and manuals. Karen's address is:

Karen Sorrentino
DI Products
Science Research Associates (SRA)
155 North Wacker Drive
Chicago, IL 60606.
(800)722-5351

Either the DI project staff, located at the University of Oregon, or the sales staff at SRA can provide information about training, consultation, and instructional materials. These same sources can provide a list of implementation sites convenient to potential adopters. Due to the fact that DI is so widely used in schools in the United States, it is likely that potential adopters will have the opportunity to observe DI being used in schools similar to their own before making a final decision about implementation.

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MASTERY LEARNING

Developed by Benjamin Bloom

General Description: Mastery Learning (ML) is a teacher-directed, whole-group, outcome-based instructional model that is designed to help teachers teach more effectively and to help students learn more efficiently. Academic achievement in the full range of knowledge and skills found in the general education curriculum is the primary objective, but ML is also used to teach such affective outcomes as self-concept and attitude toward school. ML is based on the belief that all children can learn and are capable of achieving, and that classroom experiences, not such factors as the students' race and socioeconomic background, make the greatest difference in student achievement.

ML is integrated into the existing curriculum. ML teachers organize the curriculum into instructional units and develop an instructional plan for each unit. The plan includes unit and lesson objectives, prerequisites for learning the new content, materials and activities, time allocations, formative and mastery tests, and cut-off scores to determine mastery. Each instructional unit begins with whole-group instruction and is followed by small-group and individualized instruction. Students are told before the instructional unit begins what they are expected to learn and the level of achievement that constitutes mastery. Teachers control the pace of instruction and monitor student performance daily to determine when students are ready to take formative tests.

Target Population: ML instruction is based on each student's specific needs instead of a specific category or label; thus, it can be used in grades K-12 with students with a wide range of academic abilities and affective characteristics, including mild, moderate, and severe disabilities.

Implementation Considerations: Administrators, supervisors, and teachers must understand and support ML if implementation is to be successful. Teachers are responsible for organizing the curriculum, developing and revising instructional units, pacing instruction, evaluating students frequently, using peer tutors, and maintaining progress records. And, they must develop the belief that all students can learn and are capable of achieving. Students are expected to assume responsibility for their own learning and to help others. Teachers require at least 5 days of training before attempting to implement ML, and an additional 10 days of follow-up training during the first year of implementation.

Model Effectiveness: The outcomes of ML have been studied in a wide range of subjects and grade levels in the U.S. and abroad. Studies that compared ML to other instructional approaches report that ML: (1) resulted in faster learning rates, but findings are mixed as to whether or not ML can bring the rates of the slower learners up to speed with faster learners; (2) resulted in larger gains in both general and specific achievement; (3) was effective in improving learning retention and transfer; (4) reduced the difference in achievement levels between high-achieving and low-achieving students; and (5) was generally more effective in improving students' attitudes, interests, self-concept, and self-esteem.

Costs: The primary costs are for planning and providing about 15 days of teacher training. In 1990, a trainer's daily fee for training groups of up to 50 persons ranged from $300 to $1000, plus travel and per diem.

MASTERY LEARNING

Developed by Benjamin Bloom, James Block, and Lorin Anderson

I. INTRODUCTION

Mastery Learning (ML) is a teacher-directed instructional program. It is an instructional method designed to ensure successful attainment of academic skills and knowledge by all students. The curriculum is organized in instructional units, and an instructional plan is developed for each unit. The plan includes unit and lesson objectives, prerequisites for learning the new content, materials and activities, time allocations, formative tests, and cut-off scores to determine mastery. Each new instructional unit begins with a teacher's regularly planned instruction that is supplemented with additional instruction when necessary. Teachers monitor student performance daily to determine when students are ready to take formative tests. Based on their performance on the formative tests, students who have met or exceeded the mastery criterion are assigned to enrichment activities, whereas those who fail to achieve the criterion are assigned to corrective instruction. ML emphasizes success and the prevention of failure; it is based on the belief that all children can learn and that success breeds success.

A. Purpose and Goals of ML

The purpose of ML is to help teachers teach more effectively and to help students learn more efficiently. It focuses primarily on academic learning outcomes, and can be used to teach the full range of knowledge and skill outcomes found in the general education curriculum. ML is also expected to positively affect certain non-academic outcomes, such as self-concept and attitude toward school.

The goals of ML are for all students to:

- Master the intended content.
- Develop positive attitudes towards school.
- Learn how to learn.
- Pursue later learning.

Academic achievement is clearly the primary objective. ML proponents believe the other objectives are best achieved by ensuring that all students experience frequent success on academic tasks. The emphasis in mastery is on "prevention" rather than on "repair," and it is believed that routine success on academic tasks serves to prevent subsequent academic difficulties. It is also believed that the residual effects of success on academic tasks in one subject (e.g., academic self-concept) generalize positively to other subjects.

B. Contribution to Mainstreaming

ML was not designed for one particular group or type of learner. Rather, it provides instruction that is based on each student's specific needs instead of a specific category or label. This flexibility permits ML's use in classes containing students with a wide range of academic abilities; i.e., it can be used to provide appropriate instruction to students in heterogeneous classrooms. This has made ML very popular in classrooms that contain students with disabilities and shows its potential for facilitating the integration of these students into general education classes.

Many schools that use ML encourage the inclusion of students with special needs in their ML classrooms. ML proponents believe that students can learn as much in ML classrooms as they can in alternative instructional settings. (One school district that was visited had an ML program and does not segregate any of its students with disabilities into separate classrooms; these students are taught in ML classrooms.) Students are assigned to classes in order to ensure heterogeneity with regard to academic ability, race, and ethnic and economic background. Students with special needs are generally served in ML classrooms through the use of correctives (re-teaching that differs from the original instruction in terms of materials and teaching techniques).

Special education teachers may or may not be involved in the delivery of corrective instruction, depending on the needs of the students. Students with special needs are often not labeled in ML classrooms, since the corrective instruction they receive depends on their needs instead of a label. In the schools in Johnson City, N.Y., where there are no self-contained classes or resource rooms, nearly all special education students spend some time receiving corrective instruction in "team areas" within the regular classroom. In most instances, the groups of students served in the "team areas" will also include some regular education students. The special education students are more likely to receive corrective instruction on a regular basis. They are also more likely than the regular education students to spend time in the extended day program (one additional hour each Monday, Tuesday, and Thursday) and the extended year program (three additional weeks in the summer).

The amount of time each student spends engaged in "original instruction" and/or "corrective instruction" depends on the extent to which the student is achieving the objectives specified for him or her. The objectives and criteria for mastery for many students with mild disabilities are the same as those for regular education students. However, the special education students may require more time and different instructional strategies and materials. The regular education objectives are usually altered or replaced for students with severe disabilities. For example, in one of the visited sites using ML, students with moderate or severe disabilities use the same school-wide sequence of objectives as students who do not have disabilities, except that students with disabilities may be several grade levels behind in the sequence. The objectives for all special education students, whether they are the same or different from those stated for regular education students, are included in the students' IEP.

The implementation of ML may also reduce the number of students referred for special education services. Students who may have difficulty in other settings can achieve in ML classrooms because instruction is based on their needs instead of a specific category or label.

C. Development and Foundation

The developers of ML in the United States trace its origins to early Western and Eastern educational thinking. It is based on optimistic beliefs about the capacities of humans to teach and learn; i.e., that all students can and will achieve well (at a level at which presently only the best students are achieving), and that over time, under ML conditions all students will learn more efficiently.

ML was first introduced in the United States around 1920 by H. C. Morrison at the University of Chicago (Morrison, 1926). Bloom re-introduced ML in this country in 1968 (Bloom, 1968). The focus of Bloom's ML program was the classroom. It was Bloom's students, who in the 1970's, further developed the program and, perhaps more importantly, wrote widely about its conceptual basis, classroom applications, and research. Nonetheless, the focus continued to be at the classroom level.

In the 1980's the focus of ML changed. The emphasis shifted from "mastery learning classrooms" to "mastery learning schools" and "school systems." Current ML proponents recommend that the implementation of the ML program accompany changes in the philosophy and administration of schools and school systems. The widespread implementation of ML in American schools today has resulted in the development of a network of developers and implementers to facilitate communication and enhance the use of the program. The major national network that promotes the ML program also disseminates information and resources about other outcome-based education programs. For similar purposes, groups of schools have created consortia.

The conceptual basis of ML is derived from John B. Carroll's Model of School Learning (Bloom, 1974). In Carroll's model, the basic thesis is that time is a central variable in school learning and that students differ in the amount of time they need to learn a given unit of learning to some set criterion. It is postulated that the "time needed to learn" is influenced by three general factors: aptitude, ability to understand instruction, and quality of instruction. "Time spent learning" is influenced by two factors: opportunity and perseverance. ML proponents believe that classroom experiences, not the characteristics of the learners, make the greatest difference in student achievement. As a result, ML educators typically disregard the students' race, socioeconomic background, ability, etc. as factors that influence student learning, and instead focus on those variables in Carroll's model that are directly under their control -- opportunity to learn and quality of instruction.

Perhaps the most unique feature of Carroll's model is his definition of "aptitude." Rather than using the traditional definition of aptitude as being "how much a person can learn," Carroll defined it in terms of "how long it takes a person to learn." He contended that if the student were *given* the amount of time he needed, and if the student persevered until he or she devoted this amount of time to the learning task, then the student would reach the criterion level of achievement.

Carroll's model, in its simplest version, is shown below (Carroll, 1963):

$$\text{Degree of Learning} = f\left(\frac{\text{Time Actually Spent on Learning Tasks}}{\text{Time Needed}}\right)$$

According to this model, the degree that a learner will succeed in learning a given task depends upon the extent to which he/she is able to spend the amount of time *needed* to learn the task. For example, if a student "needs" 30 minutes to learn a new skill and "spends" 25 minutes paying attention and trying to learn, learning will be incomplete. If the student had spent 15 minutes paying attention and trying to learn, then the learning will be even less complete.

Adoption of Carroll's model by Bloom meant that under ML conditions, achievement could be fixed at some high level (all students would learn the expected content) and time spent on teaching content could vary, depending on the needs of individual students. In traditional classrooms, time spent in teaching the content is fixed, and achievement varies. This constitutes the major difference between ML and conventional instruction, and is also the area that requires the most attention and creativity on the part of educators.

Bloom and his former students have contributed to what is generally referred to as a theory of ML. The contributions of these individuals are well documented in the literature on ML. Through their contributions, ML theory has grown steadily. James Block, who studied with Bloom at the University of Chicago, wrote the first books that described the theory of ML (Block, 1971; 1974). Many other books and articles have appeared since (e.g., Block and Anderson, 1975; Block, Efthim, and Burns, 1989; Guskey, 1985; Levine, 1985; and Torshen, 1977).

D. Key Principles Upon Which ML is Based

The following beliefs, principles, and ideas guide the practices and procedures that constitute ML.

1. All children can and will learn well. This is the basic belief underlying the ML program. However, there is a small percentage of the population who may not learn as well due to serious neurological impairments. A distinction is also sometimes made between those who "won't" learn and those who "can't" learn.

2. Teachers can help students learn. Teachers help students learn by communicating to them that they expect them to learn and learn well and by providing quality instruction and the opportunity to learn. It is the responsibility of the teacher to control the pace of instruction in ML classrooms.

3. Students learn more when they know what it is that they are expected to learn. In ML classrooms, desired learning outcomes are stated as goals and objectives and are shared with the learners. These goals and objectives guide the selection and development of (a) materials and activities used in ML lessons and (b) formative and mastery tests.

4. Whatever is worth learning is worth learning well. Careful attention is given to the content taught to students in ML classrooms. Students are expected to learn the content well so that they can use it, generalize it to new situations, and be prepared for the next higher level of learning. The emphasis is on mastery.

5. Curriculum is better managed when it is organized into units of instruction. The learning unit, typically 1-4 weeks in duration, depending on grade level, is the basis of instructional organization in ML classrooms.

6. Students learn better when the curriculum is structured. In ML classrooms, teachers make an effort to show how previous learning relates to new content. It is important that students understand how all of the pieces (units) fit together, and to understand that the whole is greater than the sum of all the parts.

7. Students can be taught to transfer and apply what they learn. Instruction includes teaching students to generalize concepts, rules, and skills to new situations. Opportunities for practice are provided.

8. Teaching is most effective when learners possess the pre-requisite skills. One of the characteristics of a ML unit plan is the identification of prerequisites for learning the new content. Some ML teachers pre-test for the presence of these skills.

9. Re-teaching is more effective when it differs from the original instruction. Re-teaching (corrective instruction) differs from the original instruction in terms of the materials and activities used.

10. Affective characteristics are most positively affected by ensuring that students experience frequent success on academic tasks. True changes in a student's self-concept and attitude toward school occur as a result of academic success at school. Changes resulting from academic success are likely to be more stable than those resulting from direct efforts to change affective characteristics.

It is important to note that the above list is a list of "key principles", not a list of "steps". They do not constitute a formula for teaching. Rather, these principles become incorporated into a teacher's existing style.

II. ML DESCRIPTION

ML consists of two main components: curriculum organization and instructional procedures. Even though the current versions of ML are group-based programs, students actually receive a variety of large-group, small-group, and individualized instruction.

In ML, a distinction is made between planning the course and planning the learning units. In planning the course, teachers decide what it is that they want students to learn and what they want them to be able to do with what they learn. The expected learning outcomes are stated as objectives and a task analysis is conducted to determine their proper sequence. Next, summative tests that measure these outcomes are developed for use at the end of the grading period or semester. Then, the teacher determines the level to which objectives must be attained. This is referred to as "establishing the mastery level."

The final organization activity for teachers is that of planning the learning units to achieve the course objectives. In this activity, course content is broken down into learning units that can generally be mastered by all students in about 1 - 4 weeks. All of the information about the unit is contained in a "unit plan." The plan is completed before the unit of instruction is begun. The unit plan contains the unit and lesson objectives associated with mastery of the unit goals, identifies the prerequisite knowledge and skills, describes the materials and objectives to be used, specifies the time allocated for the unit, contains the formative tests, and specifies the mastery levels for these tests. The plan also describes the materials and activities to be used (a) in enrichment instruction for those who master the objectives after the original instruction, and (b) in corrective instruction with those who fail to demonstrate mastery after the original instruction. All of the planning and development activities take place before the instruction is delivered to students.

Each new instructional unit begins with original instruction that typically lasts 5 to 15 class periods. Teachers begin instruction by introducing the unit and focusing the students on the task(s) ahead by informing them of exactly what they will learn, how they will show they have learned it, and why it is important for them to learn it. The teacher then presents the unit providing examples and guided practice. The teacher monitors students' academic work to prevent practice errors and to determine their readiness for formative assessment.

The original instruction is followed by the administration of a formative test to determine which students have and have not mastered the content. These tests may contain objective items, essay items, performance items, or a combination of these. Those students who attain the pre-established criterion level are certified as having mastered the content, and those who have not demonstrated mastery are provided corrective instruction (correctives). The corrective instruction may be carried out in many different ways (e.g., small groups or individually). It should be noted that instruction is individualized only when necessary. The corrective instruction differs from the original instruction in several ways. Different media, materials, and examples are generally used in corrective instruction. The corrective instruction is customized to the needs of the learner. Students are retaught the material until all, or nearly all, of them are able to demonstrate mastery. Those students who achieve mastery on the first formative tests serve as tutors or engage in enrichment activities or independent study.

Since it is impossible for teachers to prepare new correctives each time a student's special needs are identified, teachers must have a depository of correctives, as well as enrichment activities, available when a new unit of instruction is begun. Existing instructional units, including the correctives and enrichment activities, must be revised continually and new units must be developed. These developmental activities are time consuming, and schools must figure out a way in which to provide teachers with the time needed to complete them. In the Johnson City, N.Y. schools, the teachers are employed an additional 10 days during the summer and are given some released time during the school year. Much of this time is spent on the development of new units and the revision of existing units. In Red Bank, N.J., teachers are employed several additional days in the summer and have every Wednesday afternoon during the school year to work on new and existing units.

At the end of the instructional unit, the teacher administers a second formative test. Summative tests are administered at the end of each grading period or semester. Summative tests, like formative tests, may contain objective items, essay items, performance items, or a combination of these. Grades are often based on the students' scores on these tests and other work products, using previously established criterion levels. It is expected that 75-80% of the students will receive "A's" and "B's." The students' performance on the summative test is also the basis for redesigning instruction.

As previously stated, students know before an instructional unit begins what they are expected to learn and the level of achievement that constitutes mastery. Thus, when they receive feedback on formative and summative tests, they know how their performance compares with the pre-determined standard of acceptable performance (mastery). Based on their performance on summative exams, they also know the grades they will receive in their various mastery learning courses.

III. ML IMPLEMENTATION

A. ML in Action

It is difficult to describe exactly what a visitor would observe in an ML classroom. If the teacher did not mention ML and if there were no visible printed materials on the walls, the classroom might well look like a lot of other classrooms. On any given day, the teacher might be teaching the whole group, working with several small groups, supervising independent work, or conducting a combination of these instructional activities. Observing one class period or one day would not be sufficient for distinguishing between ML classrooms and others. However, if the observer could observe the class for two or three weeks, while an entire unit is taught, then a particular pattern of activities would be observed which would distinguish ML classrooms from other classrooms. Also, the ML classroom would differ from a lot of other classrooms in terms of the heterogeneity of students in the class. It is very common for ML classrooms to accommodate students with a wide range of academic ability and affective characteristics.

It would be noted that the ML teacher communicated to students exactly what the goals and objectives for the unit were and that he/she expected all students to achieve the goals and objectives. The actual delivery of instruction for a given unit would usually begin with whole-group instruction. The teacher would introduce the unit by telling students what they would be learning, why they should learn the unit material, and how they will be asked to demonstrate that they have learned. Actual presentation of unit material could include a variety of instructional strategies that were deemed appropriate by the teacher--discussion, lecture, demonstration.

Near the end of the time allocated for a particular unit, the students would be tested to determine which students had mastered the content and which ones needed to spend additional time on the basic content. Those who had mastered the basic content during the original instruction (masters) would then spend their time tutoring non-masters or in enrichment activities where they would be able to pursue the same topics in greater depth.

Enrichment activities may be completed in groups or individually. For example, students who demonstrate mastery on a formative test in a science class might be instructed to conduct an experiment that only the highest achieving students will be able to complete. A sixth grade student who has demonstrated mastery on a formative test in social studies might be given the enrichment assignment of rewriting the constitution in common, everyday language. An enrichment project assigned to elementary students in Johnson City, N.Y., requires them to figure out ways to save the rain forests of the world.

Only after demonstrating mastery on the formative tests do students get to work on this project. The important point is that these enrichment activities, whether they are completed individually or in groups, require a more in-depth treatment of the content than is required just to meet the mastery criterion. These activities have been planned and developed before instruction in the related unit begins. This is done to ensure that the enrichment activity will not be busy work for higher achieving students.

It would be noted in ML classrooms that the strategies and materials used to reteach the non-masters would differ from those used in the original instruction. It would also be observed that, during the original instruction and during the reteaching, students' work was monitored closely and that they received prompt feedback.

Nearly all students would experience very high rates of success on a regular basis. And, even though nearly all students would master the lesson and unit objectives, it would take some students longer to do this than it would others. Students would be given the time and assistance needed to master the objectives to a predetermined standard.

B. Participant Roles

1. Students

In ML classrooms, all students are expected to achieve the course objectives. (However, as previously noted on p.3, objectives for students with moderate or severe disabilities may be several grade levels lower in the school-wide sequence when compared to their age peers who do not have a disability.) A key component of ML is that the desired learning outcomes are shared with students. They are informed of course objectives, provided with a rationale for why it is important for them to learn the course material, and they are told how their learning will be measured. Students are then given the time and assistance necessary for them to achieve these objectives. Students are expected to assume responsibility for their own learning and to help others. Students who master the content during whole-group instruction often tutor the non-masters. The "masters" may also spend part of their time engaged in enrichment activities where they may work in small groups or independently to achieve a higher level of cognitive development. Ultimately, nearly all students achieve mastery and increase achievement. Johnson City, N.Y. reports that when students are given the time and assistance needed to learn, less than two percent of the school population fail to meet the unit objectives.

2. Teachers

Information about the philosophy and strategies associated with ML must be presented to all administrators and teachers in schools that are considering ML. Teachers cannot be "required" to accept the belief system and principles that constitute ML. However, the effectiveness of the model is undoubtedly affected by their acceptance. Teachers must also be willing to engage in planning and preparation since they are responsible for organizing the curriculum, developing and revising instructional units, pacing instruction, evaluating students, and maintaining progress records.

ML teachers will need to spend their planning and preparation time organizing the curriculum into units that reflect a comprehensive set of cognitive objectives. (Teachers generally work together in grade level or subject area teams to develop the units. These teams typically represent either the school or the entire district and complete much of the work before the school year begins.) Criterion-referenced summative evaluations must be developed for each unit and teachers must set a standard of mastery for the exam. As teachers develop their teaching units, attention will need to be given to demonstrating for students how the learning of new material relates to previously learned material. One aspect of mastery learning that differs from many traditional methods of instruction is the diagnostic component. Teachers use formative diagnostic tests to determine the knowledge and skill areas in which students need additional (corrective) instruction.

3. Administrators

ML requires that administrators understand and support ML if implementation is to be successful. They will often be required to defend the grading practices and the time spent on curriculum organization. The supervisor also has responsibility for overseeing curriculum organization activities and for monitoring program implementation. Both administrators and supervisors receive reports of student performance on unit and summative tests, with the expectation that they will review them carefully for monitoring purposes.

4. Parents/Community

As with any program or instructional method, the home can be a major ally of the teacher and the school; therefore, teachers and administrators should inform parents about the concept of "learning for mastery," enlist their support, and make sure that they have opportunities to have their questions answered as they arise. Parent meetings and newsletters can be helpful in achieving these goals. It is especially important that the home environment provides encouragement, support, and help (from parents or siblings) as the student needs it.

C. Implementation Requirements

This section describes a set of suggestions for implementing the ML model. They are just suggestions. There are many ways of implementing the model successfully.

1. Planning

Block, Efthim, and Burns (1989) suggest the establishment of a study group to learn more about ML and to share their findings with others in the school system when ML is being considered. This group would be responsible for identifying print and video materials and inviting speakers who would help others understand ML and the implications of implementing the program in their schools.

Once a decision has been made to implement ML in the classroom, school, or school system, a planning team may be established. ML seems to work best when it is implemented at the school system level or the school level, rather than at the classroom level. (If ML is implemented only in selected classrooms, it is recommended that there be at least 2-3 ML classes per grade level to provide peer support for the ML teachers.) The planning team should consist of persons from the various segments of the school or school system. This team should have primary responsibility for planning for matters related to training and implementation, e.g., identifying resources for training, planning for pre-service training, and selecting teachers to implement ML. The team must also provide information to teachers about ML, including its philosophy and how it works. When changes are planned, many groups, including parents and the general public, need to be informed.

2. Training

Teachers who will be implementing ML in their classrooms need at least 5 days of training before attempting to implement ML. This training needs to focus on how content is selected, operationalized, sequenced, and planned for delivery. They will also need support and assistance when they introduce it into their classrooms. Much of this assistance can be provided in the teacher's classroom by experienced ML teachers (consultants). Some school districts that have implemented the ML model provide released time for their teachers to work with other districts. For example, in the Johnson City, N.Y., system, approximately 70% of the teachers have worked with other school districts.

Teachers will need to learn how to construct formative and summative tests, and how to determine criterion levels for mastery. They will also need to learn how to select or develop materials and activities for corrective instruction and for enrichment. It is recommended that this training be conducted during the summer, and that teachers complete at least one instructional unit plan at that time. However, the completion of several unit plans during the summer training is preferred.

In addition to learning how to develop an instructional unit plan and all of the accompanying materials, teachers must also learn how to carry out ML classroom practices. For example, they need to learn how to communicate to all students that they are expected to learn. They also need to learn how to monitor students effectively during whole-group, small-group, and individualized instruction. They need to learn how to conduct overlapping activities in the classroom, how to use peer tutors, how to effectively use correctives, and how to efficiently keep the necessary records. They must also learn how to communicate with administrators, other teachers, and parents about ML. The teachers being trained should, where possible, have the opportunity to observe ML in operation in classrooms. The classrooms visited by potential implementers should be good examples of ML and should represent settings similar to the ones in which the potential implementers work. For example, if the potential implementer teaches in a rural school district that has a large proportion of minority students, he/she should try to visit a ML site that has similar characteristics.

It is important to offer training to all administrators and teachers in schools implementing ML. The success of the implementation of ML will depend upon its general acceptance in the schools, and its acceptance will depend to some extent upon the understanding and involvement of various groups. It is not likely that everyone in a school will choose to participate, but it is important that everyone be aware of the program.

Costs associated with training and instructional unit development comprise the primary costs that will be incurred in preparation for implementation. Costs would include trainer's fees and expenses and participants' time. In 1990, a trainer's daily fee ranged from $300 to $1,000 per day, plus travel expenses and per diem.

3. Staffing

The implementation of the ML program does not affect the number of staff members needed at a school.

4. Facilities

No special or additional facilities are needed to implement ML.

5. Curriculum, Equipment, Materials, and Supplies

ML can be integrated into the existing curriculum, although teachers may find it necessary to organize the content differently so that the units to be taught progress in a manner consistent with desired student outcomes. The primary emphasis is on the use of explicit instructional techniques targeted to ensuring that all students master unit objectives. This instruction needs to include teaching students to generalize concepts, rules, and other skills to new situations.

No additional equipment, materials, or supplies are needed to implement ML in a classroom, a school, or a school system. However, resources should be available for the additional material development that will be needed. Though preparation for instruction follows a prescribed plan, the method of instruction may vary from teacher to teacher and materials will be needed for the variety of activities that teachers will use to provide opportunities for all students to achieve.

6. Classroom Arrangement

The ML classroom looks like most other classrooms. Perhaps the most noticeable difference may be the presence of unit objectives posted in the classroom. Instruction is expected to be targeted at these objectives, and students are expected to be on task a very high percentage of the time.

7. School and District Organization

ML does not require changes in school or district organization. However, changes in philosophy and mission statements and school board approval may be necessary.

IV. MONITORING IMPLEMENTATION OF ML

A. Student, Classroom, and Building-Level Outcomes

Evaluation is built into ML. Formative and summative tests are included as part of the instructional units. These are the most appropriate measures of ML's effectiveness, since mastery of subject matter content is the primary objective. The teacher has responsibility for collecting these data, but they are often shared with supervisors and administrators. Testing is conducted every few weeks using formative tests, and every semester using summative tests.

B. Overall Program Implementation

Because student outcomes are monitored frequently when using ML, it is relatively easy to determine how effectively ML is achieving overall program goals. In addition, supervisors and administrators are kept aware of student achievement on formative and summative tests. Standardized achievement tests may also provide a good measure of ML outcomes.

V. EVIDENCE OF ML EFFECTIVENESS

ML has been implemented and evaluated in a wide range of subjects and grade levels in the U.S. and abroad. The program has also been implemented and evaluated in small school districts, such as Johnson City, NY (see Mamary, 1986) and Red Bank, NJ (see Squires, Huitt, & Segars, 1983-1984), and in large ones, such as Denver (see Barber, 1982) and Philadelphia (see Conner, Hill, Kopple, Marshall, Scholnick, Schulman, & Sloan, 1986). Cognitive and affective outcomes have been studied using a wide variety of research methodologies.

Each of the ML studies can be classified as "evaluation research" or "experimental/quasi-experimental research." The experimental/quasi-experimental research studies exercise more methodological control by randomly assigning teachers and students (or classes) to groups (ML or control), but these studies are generally shorter in duration than the evaluation research studies. Standardized achievement tests are generally used in the experimental/quasi-experimental research studies.

In evaluation research studies, existing ML classrooms are generally used, and teacher- or experimenter-made tests are frequently used to assess learning. True control groups have seldom been used, and ML programs have varied from one site to another. A common approach used to study the effects of ML has been to compare before-ML student achievement and after-ML achievement.

The review of ML studies that did the most to delineate the findings of these two types of research was one conducted by Robert Slavin (1987). He noted that the findings of the evaluation research studies were more favorable toward ML. In fact, he found essentially no evidence to support the effectiveness of ML in experimental/quasi-experimental studies using standardized achievement tests.

However, most of the studies of ML would be classified as evaluation research designed to answer the question, "How effective is ML?" The studies in this group have consistently reported that student achievement is higher following the implementation of ML. Many of these studies have been conducted by parties with vested interests, while others have been conducted by independent evaluators.

The research on ML can be discussed using four categories: (a) Student Learning, (b) Variability in Learning, (c) Learning Rate, and (d) Student Affect. Each of these categories of research is briefly discussed below.

A. Student Learning

Studies examining the effects of ML on student learning have looked at both general achievement and specific achievement. Many of the findings of separate studies are summarized in reviews by Block and Burns, (1977) and Guskey and Pigott, (1988). The two reviews reported gains in achievement in favor of ML for general achievement and for achievement in specific subject areas. Studies of retention and transfer all showed strong support for ML.

B. Variability in Learning

Only one major review of the research on ML examined its effects on variability in learning, i.e., the difference between the high-achieving and low-achieving students (Block and Burns, 1977). Only four of the studies they reviewed had considered this variable, but the results indicated that ML reduced the variability by approximately 50%. It is important to note that this was accomplished while achievement was increasing significantly.

C. Learning Rate

Learning rate is related to variability in learning. ML seeks to reduce variability among learners by bringing the slower ones up to speed with the faster ones. There is much debate about how successful ML has been in accomplishing this objective. Some studies report that the rate does increase under ML conditions (see review by Guskey and Pigott, 1988), while others (notably, Cronbach and Snow, 1977; Arlin, 1982; and Cohen, 1983) question this finding.

D. Student Affect

The effect of ML on student affect is considered to be a "side effect" (Block, Efthim, & Burns, 1989). Studies of these effects on such factors as students' attitudes, interests, self-concept, and self-esteem have been conducted and are reported in several reviews (e.g., Block & Burns, 1977; Dolan, 1986; and Guskey & Pigott, 1988). Even though these studies are not without their methodological problems, they are quite consistent in their findings. The results nearly always favor ML over the other instructional approaches.

VI. SOURCES OF ADDITIONAL INFORMATION

The book entitled, Building Effective Mastery Learning Schools, by James Block, Helen Efthim, and Robert Burns (1989), is a comprehensive source of information about ML. In addition to discussing in detail many of the issues addressed in the present document, the book also identifies such ML resources as professional organizations, consultants, sites to visit, reference materials, training manuals, and audiovisual materials. It is an invaluable source for any person or organization interested in ML. This book can be purchased from Longman, Inc., 95 Church Street, White Plains, NY 10601.

For additional information about ML, including training for the model and the names of referral sites that are currently implementing ML and are willing to share their experiences, contact:

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LEARNING STYLES

Developed by Rita Dunn

General Description: The Learning Styles Model (LSM) is an individualized instructional process that matches learning style preferences with instructional procedures and materials. The primary goal of LSM is to improve the effectiveness of instruction through the identification and matching of individual learning styles with appropriate instructional procedures and materials. Changes in classroom organization and instruction are made to accommodate a variety of learning preferences. The LSM provides the instructional flexibility that can facilitate modification of instruction for students with disabilities in general education classrooms. The Learning Styles Inventory, a self-reporting instrument, is used to identify individual styles for a number of learning style elements including environmental, motivational, sociological, physical and psychological preferences. Instruction is then individualized to respond to specific learning style differences among students. The LSM recommends three techniques for individualizing instruction to address learning style preferences. Instructions are provided for developing Contract Activity Packages, Programmed Learning Sequences, and Multisensory Instructional Packages.

Target Population: The LSM was developed for use in general education classrooms at the elementary and secondary levels. However, the process for identification of learning styles is more reliable at older age levels. Although not specifically designed for use with students who have disabilities, the emphasis on matching instruction to the individual learning style preferences of students is consistent with the instructional philosophy prevalent in special education.

Implementation Considerations: The LSM requires teachers to organize their classrooms and present instruction in a variety of ways in order to address the various learning preferences of students. A flexible classroom organization is necessary to offer a variety of learning activities and options. This will require individualized instruction in addition to small group or large group instruction. Learning activities will need to address auditory, visual, tactile, and kinesthetic learning styles.

Program Effectiveness: Numerous studies of LSM effectiveness have been conducted. These studies have generally reported increased academic performance and achievement when instruction is matched to individual learning styles.

Costs: Costs associated with training teachers and staff represent the primary expenses associated with LSM implementation. Comprehensive training requires about 50 hours of direct training time. If a trainer is brought in to conduct training there will be a daily fee for the trainer plus travel and per diem. Schools and districts may choose to send staff to train at the Center for the Study of Learning and Teaching Styles in New York (St. John's University), which costs $800.00 (1989 price) per person plus travel and per diem for 8 days of training.

LEARNING STYLES
Developed by Rita Dunn

I. INTRODUCTION

The Learning Styles Model (LSM) is an individualized instructional process that matches learning style preferences with instructional procedures and materials. When using the LSM, the classroom organization and climate is substantially changed from the traditionally structured classroom (rows of desks with total group expository instruction) to a flexible classroom organization that offers a variety of learning activities--individual and/or in small groups.

Through the use of self-report instructional preference inventories, each student's learning style (or preference) is identified. The classroom is organized to use a variety of instructional procedures, activities, and materials to accommodate each student's learning style. Specific classroom changes reflect the conditions of learning which allow each student to process information effectively. These classroom and instructional elements include environmental considerations, such as lighting, temperature, alternative seating arrangements, and noise; sociological factors, such as working in groups or alone; personal motivational characteristics, which include the ability to independently complete assignments; and psychological considerations that involve how the student approaches a learning task.

A. Purpose and Goals of Learning Styles

The LSM has been developed for use in regular elementary and secondary classrooms to improve the academic performance of all students. The primary goal is to improve the effectiveness of instruction through the identification and matching of individual learning styles with appropriate instructional procedures and materials. When considering the elements of instructional settings, the major focus for change is the organization of the classroom. Changes in classroom organization are made to accommodate a variety of learning preferences. The LSM is based on the assumption that it is possible to identify individual student preferences for learning environments and modify the environment to match the preferences. As a result, the students will improve their learning.

The LSM has been successfully used at all grade levels. However, as with most self-report measurement procedures, the process used for identification of learning styles is more reliable at older age levels. Instruction based on learning styles has been implemented much more extensively at the secondary school levels. The National Association of Secondary School Principals (NASSP) has been very active in promoting the learning styles approach to instruction. NASSP and St. John's University's Learning Styles Network provide in-service training and disseminate information and materials on learning styles. The program has been used in a variety of school settings, with different types of student populations. Although the main thrust of the learning styles approach to instruction is aimed at facilitating learning for students who have not been successful in traditional classrooms, the program has also been used successfully with normal achieving and gifted populations.

B. Contribution to Mainstreaming

The LSM provides the instructional flexibility that can facilitate modification of instruction for students with disabilities in regular classrooms or resource rooms. The individualized educational process mandated for the education of students with disabilities is facilitated with the diagnosis of learning styles. Learning style strengths and instructional modifications designed to use these strengths can be included in the IEP planning for these students.

There is also the potential that the use of the LSM in regular classrooms will reduce the number of students that might unnecessarily be referred for special education evaluation. That is, regular classrooms using the program can provide the instructional flexibility and individualized instruction that maximizes each student's ability to learn basic skills. As a result, some students who might have been inappropriately referred for special education evaluation may not be referred. At least two different instructional delivery systems have been used by schools that have implemented the LSM to improve instruction for students with disabilities and other learning problems. One approach is the use of a learning laboratory--a classroom that is established as a learning styles study and resource room. Students use the learning laboratory on an independent basis during periods when they do not have classes scheduled or during times when guided and independent practice activities are being used in their classroom. The learning laboratory is not a substitute for instruction in any of the student's academic classes. In many other schools, the LSM is implemented within the regular classroom where mainstreamed handicapped students participate along with the entire class. Although the LSM was not specifically designed for handicapped students, the diagnostic approach to individualizing instruction is very compatible with public law and instructional philosophy prevalent in special education. The program has been implemented and tested with underachieving regular students, bilingual students, and students identified as most likely to drop out of school.

C. Development and Foundation

The LSM grew out of the public school classroom experiences of Dr. Rita Dunn, while she was conducting instructional research as a professor at Hunter College. Later in 1979, St. John's University established the Center for the Study of Learning and Teaching Styles, under the leadership of Dr. Dunn, to provide research, inservice training, and public service information about learning styles. Since that time, the National Association of Secondary School Principals (NASSP) has promoted and supported the Center's efforts.

During the past thirteen years, NASSP and St. John's University have co-sponsored the Learning Styles Network. The Network publishes a newsletter and provides information and assistance to practitioners and researchers interested in learning styles. The Network has expanded to include other Network members which now also house Centers on their campuses. Those include:

- The Network Learning Styles Center cosponsored by George Mason University and the Fairfax County School Systems; co-directors: Drs. Barbara Given (George Mason University) and Sylvia Auton (Assistant Superintendent, Fairfax County);
- The Network Learning Styles Center at East Texas State University; co-directors: Drs. Joseph Vaughan (East Texas State University) and Sherrye Dotson, District Curriculum Coordinator, Jacksonville Public Schools, Texas);
- The International Network Learning Styles Center at ERIE 1 BOCES, Depew, New York; co-directors: Drs. David Hill (BOCES) and Carolyn Brunner (Association for the Advancement of International Education);

- The Network Learning Styles Center at Aquinas College, Grand Rapids, Michigan; co-directors: Drs. Katy Lux and Connie Bouwman;

- The Alabama Network Learning Styles Center at Alabama Agricultural and Mechanical University, The University of Alabama at Huntsville Regional Inservice Center, Post Office Box 291, Normal, Alabama 35762; director: Professor Annie Wells.

Learning styles, as defined by Dunn, Beaudry, and Klavas (1989), is "a biologically and developmentally imposed set of personal characteristics that make the same teaching method effective for some students and ineffective for others." The LSM traces its roots to two distinct theories of learning: brain lateralization theory and cognitive style theory. Brain lateralization theory, discussed extensively in Ornstein and Thompson (1984), has emerged from the early work of French neuorologist, Paul Braco. According to these authors, Braco's clinical research led him to conclude that the two hemispheres of the brain have different functions.

Later work by the Russian scientist Luria confirmed Braco's findings. Additionally, Ornstein and Thompson report that work by Sperry and others during the last twenty years has demonstrated that left hemispheric brain activity is associated with verbal and analytical abilities, while right brain activity is associated with emotions and spatial and holistic thinking abilities.

Cognitive style theory suggests that individual learners process information differently based on either learned or inherent characteristics. Much of the study of cognitive style has focused on two main categories of cognitive style: conceptual tempo and field dependence-independence (Good and Brophy, 1986). Conceptual tempo refers to the degree to which people are cognitively impulsive versus cognitively reflective in responding to a variety of situations or learning tasks (Kagan & Kogan, 1970). Field dependence versus field independence is also referred to as global versus analytic perceptual style. Learners who have a global cognitive style perceive information in a holistic and/or simultaneous manner, while learners who have an analytic perceptual style perceive information in parts or in a sequential manner.

After an extensive review of the cognitive/learning styles literature, Curry (1987) suggests that three distinct concepts or "sub-constructs" have been combined to form the construct of learning styles. These are:

(1) Instructional preference, which refers to the individual's choice of environment in which to learn;

(2) Information processing style, which is the individual's intellectual approach to assimilating information, and;

(3) Cognitive personality style, which involves the approach to assimilating information but reflects underlying, relatively permanent personality characteristics.

According to Curry, Dunn's Learning Style Inventory identifies instructional preferences with reliability and validity. She suggests that the psychological learning style elements (i.e., the psychological elements of Global/Analytic, Hemisphericity, and Impulsive/Reflective) are compatible with the construct of information processsing.

Good and Brophy (1986) suggest that educators review the support of theoretical constructs underlying classroom practices relative to learning styles from the perspective of the practitioner. The educational implications drawn from such theories and constructs may indeed have something to offer. Acknowledgement of learning styles recognizes that people are different. Therefore, it makes sense to accommodate individual differences by presenting information in the classroom in a variety of ways through more than one modality (Snider, 1990).

D. Key Principles Upon Which Learning Styles is Based

The LSM theorizes that each individual has a biological and developmentally imposed set of learning characteristics that are unique. Learning will improve when the classroom organization and instruction is presented in a manner that will capitalize on an individual's learning strengths. This theory is based on the generally accepted concept that individual students differ in how they learn new information. The concept of individual learning differences is well established in the psychological and educational literature (Good and Brophy, 1986). The LSM also includes learning style elements derived from the constructs of cognitive style (Kagan & Kogan, 1970) and brain lateralization (Ornstein and Thompson, 1984).

There are several general principles in the form of philosophical assumptions that the LSM embraces. If the use of the program is to be effective in a school system, teachers and administrators must be committed to the following assumptions:

- All individuals can learn.
- The learning conditions in which different individuals learn best will vary.
- Individual learning preferences exist and can be reliably measured.
- Students are self-motivated to learn when they have the option of using their learning preferences.
- All teachers can learn to use learning styles as a basis for instruction.

There are also several principles associated with the implementation of the program in establishing the instructional settings that should be followed for successful implementation of the LSM. These instructional principles include:

- Formal procedures for identifying individual learning styles are established and utilized.
- Each classroom is organized in a flexible manner to provide a variety of individual and group instructional activities simultaneously.
- Students monitor their own progress and are responsible for their own achievement.
- An instructional system is employed that includes instructional objectives, frequent monitoring of progress, and feedback to students.

II. LEARNING STYLES DESCRIPTION

The use of the LSM involves two main categories of activities: (a) the diagnosis and identification of individual learning styles, and (b) the planning and implementation of instruction to accommodate individual student's learning style strengths (Dunn, Dunn, & Price, 1985). At the diagnostic stage of the program, individual strengths and weaknesses across a set of learning style elements are identified. These elements are presented below, grouped into five stimuli categories: environmental, emotional, sociological, physiological, and psychological. Preferences that are related to the classroom environmental characteristics are:

- **Sound Preference.** When concentrating on learning tasks, does the student prefer silence when studying, or varying degrees and/or types of noise, such as music or talking?

- **Light Preferences.** During learning tasks some individuals perform differently in soft light as compared to bright lights. Does the student have a clear preference for a particular level of light?

- **Temperature Preferences.** Does the student prefer a warm, rather than cool classroom when concentrating on mental tasks?

- **Design Preferences.** Some students prefer a formal and traditional desk and chair arrangement of the classroom furniture while others prefer an informal learning atmosphere that includes a flexible arrangement of the furniture and different types of furniture, such as soft reclining chairs, carpets and pillows on the floor.

Preferences that relate to the emotional and personality characteristics of the student are called "Motivation Preferences". This set of preferences focuses on determining the main source of the student's motivation for learning. Three main motivation sources are suggested: (a) intrinsic and self motivation, (b) peer oriented motivation, and (c) adult/teacher oriented motivation. The motivation preferences are:

- **Persistence Preferences.** Persistence refers to the student's attention span in relation to staying on task. Does the student prefer to work for long periods of time on one task, or does he/she prefer frequent breaks or variations in the learning task?

- **Responsibility Preferences.** Does the student prefer to follow through independently on assignments with little supervision, guidance or feedback from the teacher or does he/she prefer frequent teacher guidance and supervision?

- **Structure Preferences.** This element addresses the amount of learning task structure preferred by the student on a continuum from extensive structure to very little structure.

Instructional preferences that are associated with interpersonal and sociological characteristics are called "Self Preferences". They address the question: When working on a learning task does the student prefer to work alone in an independent fashion? The five preferences in this set are:

- **Alone Preference**. When working on a learning task, does the student prefer to work by herself/himself?

- **Pair Preference**. When working on a learning task, does the student prefer to work with one other student?

- **Peer Preference**. When working on a learning task, does the student prefer to work in a cooperative group with five or six other students?

- **Teacher Preference.** Does the student prefer working on a learning task with a teacher?

- **Varied Preference**. Does the student prefer to work on a learning task in a variety of groupings as well as with the teacher?

The following instructional preferences are associated with the individual student's biological or physiological nature. The "Perceptual Preferences" address the question: Does the student prefer instructional procedures that primarily use (a) a visual modality, (b) an auditory modality, (c) a tactile modality, (d) a kinesthetic modality, or (e) a multisensory modality? The remaining three physiological preferences include:

- **Intake Preferences**. Does the student prefer to be eating or drinking while she or he is working on a learning task?

- **Time Preferences.** Does the student prefer to concentrate on a learning task in the (a) early morning, (b) late morning, (c) early afternoon, (d) late afternoon, or (e) evening?

- **Mobility Preferences**. When working on a learning task, does the student prefer to physically change positions or move around the room?

The psychological elements are concerned with the cognitive processing style of the student and are designated as the "Global or Analytic Style." These elements relate to the question: Does the student prefer to work on a learning task by breaking the task into sequential chunks of information to learn and then reviewing the total task (sequential learning), or does he/she prefer to develop an overall understanding of the task before learning the details (simultaneous learning)? The preferences associated with the Global or analytic style are:

- **Hemisphericity Preferences.** Does the pattern of instructional preferences of the student suggest a right brain or a left brain dominance?

- **Impulsive or Reflective Style**. Does the student prefer to come to conclusions and make decisions quickly or does she/he prefer to spend time thinking about the content involved before making a decision or taking action?

Several instruments have been developed to measure learning styles and preferences. The most prominent of these instruments is the Learning Styles Inventory developed by Dunn, Dunn, and Price (1985). Once students' learning styles are identified, instructional environments are arranged to match individual learning style strengths. The primary focus during this stage is on restructuring the classroom organization to facilitate effective instruction. The classroom's physical setting, including room arrangement, pupil grouping, and procedures used for instruction, are varied to match individual learners' learning styles.

A wide variety of instructional procedures and materials should be used to simultaneously provide an array of learning situations that match student learning styles. Students must have opportunities for individual and small group learning. By individualizing instruction for some students, teachers are able to respond to specific learning style differences among students. Individualized instruction allows for self-pacing, gearing academic content to student ability level, independence, and attention to individual student interests. The developers in their books, Teaching Elementary Students Through Their Individual Learning Styles: A Practical Approach (Dunn & Dunn, 1992), and Teaching Secondary Students Through Their Individual Learning Styles: A Practical Approach (1992), describe three techniques for addressing a variety of learning styles through individualized instruction. These techniques are Contract Activity Packages, Programmed Learning Sequences, and Multisensory Instructional Packages.

Contract Activity Packages (CAPs) are individualized educational plans that contain:

- Simply stated objectives that itemize exactly what the student is required to learn.

- Multisensory resources that teach the information that the objectives indicate must be mastered.

- A series of activities through which the information that has been mastered is used in a creative way.
- A series of alternative ways in which creative activities developed by one student may be shared with one or more classmates.
- Inclusion of small-group learning techniques.
- A pretest, a self-test, and a post-test.

Dunn and Dunn (1992a, 1992b) and Dunn, Dunn, and Perrin (in press) provide directions that teachers can use for developing CAPs, or teachers may order developed CAPs from the Learning Styles Network (address provided at the end of this summary).

Programmed Learning Sequences (PLSs) are a form of programmed instruction that present topics to students in a logical, easy-to-follow sequence. PLSs have the following basic programmed instruction characteristics:

- Only one task is presented at a time.
- The student is required to be an active, rather than a passive, learner.
- The student is immediately informed of the correctness of each response.
- Students may not continue into the next phase of a program until each previous phase has been understood and mastered.
- The student is exposed to material that gradually progresses from the easy to the more difficult.
- As the student proceeds in the program, fewer hints and crutches are provided.

Directions for developing PLSs are provided by Dunn & Dunn in the aforementioned books.

Similar to CAPs and PLSs are Multisensory Instructional Packages (MIPs). MIPs are self-contained teaching units that provide opportunities for students to access information in a variety of formats. The MIPs can be designed by teachers following directions provided by Dunn & Dunn (1978) and include the following elements:

- The focus is on a single concept.
- At least four senses are used to learn the contents.

- Feedback and evaluation are built in.
- Learning is private and aimed at individual learning styles.

The success of the LSM depends on the teacher's ability to plan and develop the appropriate learning activities from which students may select. In addition to individual learning opportunities, teachers must provide opportunities for small group learning. Teachers are encouraged to employ a variety of small group activities. All learning activities should be developed to address the auditory, visual, tactile, and kinesthetic learning styles of students.

III. LEARNING STYLES IMPLEMENTATION

A. Learning Styles in Action

When you walk into an LSM classroom you will immediately notice differences in the physical arrangement of the room and the classroom atmosphere. In an LSM high school mathematics classroom visited recently, a group of six students were working together at a group table adjacent to the front chalkboard. The teacher was presenting the steps of a problem on the chalkboard, explaining each step as she proceeded. Four other students were sitting at individual desks working independently. In another part of the room, two students were lounging on a carpet on the floor with pillows and writing tablets, working independently on their math problems. In another corner of the room, two students were working together on a project oriented activity, developing drawings of the angles needed to be able to successfully place a billiard ball in a corner hole from a specific spot on the table. Although the teacher was primarily working with the group of students who were together at the table, from time to time she would briefly move to the other sections of the room to check the progress of the other students in the class. Frequently, the students working independently would attend to the teacher's presentation and accompanying explanations. It was clear that each student in the room was free to decide how they would be involved in learning the math concepts that were the object of the day's activities. There was a very high level of on-task behavior even though students were working on different aspects of the lesson activity.

B. Participant Roles

1. Students

Students are required to learn about their learning styles and apply that information in an independent and responsible manner to classroom learning situations. It is the student's responsibility to monitor his/her progress and obtain closure in meeting instructional objectives. According to successful implementers of the program, a basic principle underlying success is the student's ownership of decision-making about how she/he will be involved in instruction. This process builds motivation for learning and responsibility for achievement. St. John's University's Center for the Study of Learning and Teaching Styles has a "Homework" Software Package used in conjunction with the Dunn, Dunn, & Price Learning Style Inventory which provides each student (Grades 3-12) with an individual prescription for studying and doing their homework through their unique individual strengths. Many schools have reported success by teaching their students to teach themselves (Andrews, 1990, 1991; Klavas, 1991; Knapp, 1991).

2. Teachers

The LSM requires teachers to organize the classroom and present instruction in a number of different ways to facilitate the use of learning preferences. The teacher must (a) understand the underlying concepts employed in the learning styles approach, (b) be able to reliably assess learning styles of individual students, and (c) be able to effectively use the learning styles techniques.

3. Administrators

The LSM has a major impact on school administrators and supervisors because they must provide planning, leadership, and organization for the implementation of the program. In school districts where LSM has been implemented, responsibility for managing and coordinating the LSM is usually assigned to a specific coordinator or administrator. The coordinator's role includes (a) communicating about the LSM, (b) organizing the staff for planning and decision making, (c) coordinating staff training, (d) administering and coordinating the implementation of the program, and (e) evaluating the effectiveness of the program. Communicating and disseminating information about the LSM is an especially critical responsibility for administrators. The program represents a significant, easy to observe departure from traditional instructional practices. Therefore, without a good understanding of why classrooms look different physically, and why student-teacher interactions look different, it is relatively easy for suspiciousness and negative attitudes to develop. Successful implementation sites appear to place a lot of emphasis on communication, staff orientation, and public awareness during the initial phases of implementation.

4. Parents/Community

Adoption of the LSM calls for a classroom atmosphere and physical environment that is different from what is typically found in the public schools. Many parents have developed a bias about what instruction "is supposed to be like" and are likely to be suspicious about approaches that are visibly different than what is normally expected. Therefore, great care needs to be taken to assure that all parents and students understand the LSM rationale for changes in the classroom environment and organization. In some schools where parent support for Learning Styles is high, inservice programs on the LSM are provided to parents and they are often given a copy of the Learning Style Inventory during this orientation.

An additional resource for parents is the book Bringing Out the Giftedness in Every Child: A Guide for Parents (Dunn, Dunn, & Treffinger, 1992). This book explains to parents how to identify and use their childrens' learning style strengths to develop their interests, academic giftedness, and self-confidence.

C. Implementation Requirements

1. Planning

When the LSM is being considered, it is helpful to identify a person to have primary responsibility for gathering information or materials about the program and/or attending at least one of the LSM workshops offered by the program's chief developer, Rita Dunn. After a decision is made to adopt the LSM, essential planning elements involve (a) orienting staff, parents, students, school board, and the public to promote understanding and acceptance of the program; (b) selecting volunteer teachers who will use the program in their classrooms; (c) developing a staff training plan; (d) developing a learning styles testing/diagnosis plan; and (e) developing a budget for communications, training, and testing/diagnosis.

The LSM should only be used with teachers who are interested in using the program and volunteer for training and implementation. Mandating the use of the program by all teachers in a system or in a building is not recommended. Most successful implementations are preceded with orientation workshops. After the staff has an initial awareness of the LSM theory and approach, volunteers are solicited to participate in intensive LSM training. Participants in the implementation of the LSM program are then selected from the volunteers. Initially, implementation begins on a small scale and more volunteer teachers are phased in over time as they see the benefits of the program. It is recommended that at least a year of planning and general orientation to the LSM is conducted before implementation is undertaken by trained teachers. No ongoing planning, beyond that necessary for typical instruction is required of teachers using Learning Styles.

2. Training

The developers of the program do not mandate a specific training regimen as a prerequisite for program adoption. They do suggest that key personnel, teachers as well as supervisory staff, obtain training at the Center for the Study of Learning and Teaching Styles in New York. However, the developers do not require training at the Center for adoption of the program and encourage on-site training as an alternative approach. It is possible to receive appropriate training using successful implementers of the program or staff from the Center. Many adopters of the LSM have sent one or two staff members to New York for training to become on-site trainers for the remainder of the staff. Again, it should be emphasized that the developers have not developed structured specifications concerning who should be trained and the content of the training. Although training is encouraged, the amount of training and type of training is left up to the individual school district. Continuing assistance with implementation of the program is available from the developers in the form of training, assessment, and instructional materials. The costs of training teachers and staff represents the largest expenditure of adopting the LSM. Comprehensive training takes approximately 50 hours of direct training time. Initial implementation training can be, and usually is, extended over a period of several months. After initial training, it is also recommended that periodic maintenance training be continued each year. Training during the school year may require hiring substitutes, depending on the training plan developed. Training at other times of the year, or after school, may involve a payment for the time each teacher spends in training. Costs of training vary depending on the training plan. Training conducted at the Center in New York costs $800 per person for registration and materials for an eight-day Leadership Institute through which certification as an LSM Trainer is obtainable. Travel and expenses are not included. On-site training involves a trainer's fee which may range from $600 to $1000 per day depending on which trainer comes. Dr. Dunn's fee for training is $2500 per day plus expenses. Costs for some 5 day conferences held in various parts of the country were cited as $300 to $450 per person for registration and materials (1992 prices).

An on-going training requirement is not specified by the developers. However, developers as well as implementers suggest that it is desirable to continue training on a regular, but less frequent, basis. New implementation materials and resources are made available on a routine basis from the Center for the Study of Learning and Teaching, and these materials frequently form the basis for continuation of training.

3. Staffing

No additional instructional or supervisory staff are needed to implement the Learning Styles Model. Teachers using Learning Styles can choose the extent to which they implement it. As noted previously, it is important to designate a coordinator for the LSM implementation. Initially this role may amount to 20% to 30% of a supervisor's time.

4. Facilities

Although modifications to classroom furnishings are necessary, no special or additional facilities are needed to implement Learning Styles.

5. Curriculum, Equipment, Materials, and Supplies

Since the LSM is designed primarily to supplement curricula, it can be used with any established school curriculum. However, the method of teaching curriculum changes. For example, in one school where the LSM has been implemented, a geometry teacher reported using kinesthetic activities to teach math concepts. She was referring to activities that involved students using their bodies to demonstrate geometric concepts. Other subject area teachers in the school also reported addressing a variety of modalities during instruction.

Although it is essentially a teacher-centered approach, the LSM involves a significant departure from traditional instruction. For most schools, adoption of the LSM requires a reorganization of the physical classroom setting and the provision of an array of different instructional media, procedures, and materials. A variety of instructional materials such as audio and video equipment and computers may be used, and schools must often purchase furniture (i.e., carpeting, sofas, study carrels). These purchases are usually handled as part of regular budget expenditures. Additional equipment and materials that may be purchased from time to time during implementation may include supplemental textbooks, resource books, individualized instructional materials, audio tape players, and other types of individual instructional materials and equipment.

The use of the Learning Styles Inventory or a similar process for determining students' learning preferences or styles is necessary for the implementation of the LSM. Each student enrolled in a school using the LSM must have his/her learning preferences diagnosed. Preferences tend to change more during the elementary school years than during the secondary school years. Therefore, it is advisable to measure learning preferences more frequently at the elementary school level. Most implementers at the secondary level only measure learning preference once, usually at the beginning of the middle school, junior high school, or senior high school years. The inventories can be purchased from the Center for the Study of Learning and Teaching Styles and cost approximately $34.00 for 500 copies. Scoring and processing of completed inventories are available from the Center for a cost of approximately $1.20 per student when processing 30 or more. If schools prefer, a computer disc can be purchased for $295.00 which provides 100 inventories to be completed, scored, and processed. For each additional 100 inventories, the cost is $60.00 (February, 1992 prices).

The Center for the Study of Learning and Teaching Styles also offers a computer software package titled "Homework Disc." Using the package, individual student's Learning Styles Inventory Printouts are analyzed and a prescription for studying and completing homework using individual strengths and preferences is provided. The "Homework" package is available for a one-time cost of $90.00 and can be used with unlimited numbers of students.

6. Classroom Arrangement

As noted above, the LSM results in modifications to the physical setting of the classroom. Most classrooms require a complete reorganization in order to address the individual learning styles that have been identified. No additional space will be needed. However, different types of furniture and equipment are necessary to appropriately organize classrooms. Room arrangement, types of furniture, grouping of students, and the nature of information presentation should be established so there is a maximum amount of flexibility and potential for a wide variety of learning activities. Carpets, easy chairs, and individual and small group furniture arrangements are often used. Also, it is desirable to establish classroom learning centers that include instructional equipment such as individual tape-recorders, overhead projectors, and computers (see Dunn & Dunn, 1992a, 1992b; and Dunn, Dunn, & Perrin, in press).

7. School and District Organization

The LSM does not require changes in class scheduling or have a major impact on how a school or district is organized.

IV. MONITORING IMPLEMENTATION OF LEARNING STYLES

A. Students, Classroom, and Building-Level Outcomes

No formal evaluation instruments are provided for measuring student outcomes. Typically, student progress is measured through traditional means: standardized group achievement tests and course exams and grades. Special education students participating in the LSM are graded by each of their regular teachers. Frequently, special teachers will assist in the administration of regular class tests to identified students under special conditions. The evaluation emphasis is placed on student achievement levels, passing grades, and eventual graduation.

B. Overall Program Implementation

There are no formal procedures recommended by the developers for evaluation of the efficiency of program implementation and satisfaction with the program. Some implementers have developed satisfaction questionnaires that can be used to solicit levels of satisfaction with the program from parents, students, and staff members. These questionnaires have been locally developed.

V. EVIDENCE OF LEARNING STYLES EFFECTIVENESS

Effectiveness studies on the LSM have been quite extensive, with studies reported from over 75 universities within the past decade. These studies can be generally categorized across specific groups of learning style preferences, such as the environmental elements or the sociological elements. Although the studies have been conducted at all grade levels, K through 12, and across various groups of students, the majority of the studies cited have been conducted at the secondary grade levels and have focused on students that have demonstrated lower levels of academic achievement.

A. Learning Styles and Instructional Environments

A number of studies have been conducted examining the impact of matching instruction with learning preferences associated with the classroom environment. Almost all of these studies demonstrate that students perform significantly higher on academic tasks as a result of the use of the LSM. Dunn, Beaudry, and Klavas (1989) conducted an extensive review of the literature. They cited studies investigating sound preferences, mobility preferences, formality/informality preferences, lighting preferences, and intake preferences; which had all reported a significant impact on academic performance when students' preferences for a specific element were considered during instruction. Only one study, cited in this review, which investigated temperature preferences demonstrated no significant differences as a result of matching preference and instruction.

B. Learning Styles and Perceptual Preference

Dunn & Dunn, (1992a, 1992b) reviewed 13 studies from the previous decade which found that when students were taught with instructional resources that both matched and mismatched their preferred perceptual modalities (auditory, visual, tactile), they achieved statistically higher test scores in modality-matched treatments. In addition, when children were taught with multisensory resources, initially through their most preferred modality and then reinforced through their secondary modality, scores increased even more.

C. Learning Styles and Sociological Preference

Five studies have been conducted recently in which students' sociological preferences (learning alone, with peers, in teams, with adults, with media, or in several ways) were identified and the students were taught in multiple treatments, i.e., responsive and unresponsive to their diagnosed learning styles (Dunn, Beaudry, & Klavas, 1989). In four of the studies, students achieved significantly higher test scores when instructional conditions were matched and significantly lower test scores when instructional conditions were mismatched.

D. Learning Styles and Academic Achievement

A number of school systems that use the LSM report that the program has contributed to increased achievement and higher levels of satisfaction (Corsicana Public Schools, Texas; Edmonds School District, Washington; Chicago Public Schools, Illinois; Franklin Township Schools, Indiana). The LSM is used extensively in public and private schools across the country and public school users of the approach support its effectiveness. There is some concern among professionals that the learning styles construct and/or its classroom use have not been proven effective; however, there is a great deal of evidence supporting its use, particularly as reported by practitioners of the program.

VI. SOURCES OF ADDITIONAL INFORMATION

The Center for the Study of Learning and Teaching Styles located at St. John's University in Jamaica, New York has developed a comprehensive support system for schools interested in implementing the learning styles approach to instruction. The Center was established in 1979 and maintains three major components--research, inservice training, and publications. The Center provides a number of services for schools interested in learning styles.

In 1979, the National Association of Secondary School Principals (NASSP) and St. John's University began cosponsorship of the Learning Styles Network. The Network provides information about developments in the field of learning and teaching styles. Its services include:

- The publication of three newsletters annually that provide summaries of the latest research, practical applications, and experimental programs;
- Descriptions of publications and dissertations in the field;
- Identification of resource personnel and exemplary school sites;
- Updated bibliographies of publications and films; and
- Responses to written or telephone requests for information.

In addition, the Network provides forty-three specific resource products that include research reports, video-taped training materials, assessment instruments, training manuals, and instructional materials. A Learning Styles Network Hotline is also maintained to provide information on a regular basis (718-990-6161, ext. 6412).

Contact the following for additional information about the Learning Styles Model (LSM), including training for the LSM and the names of sites that are currently implementing the LSM and are willing to share their experiences:

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SUCCESS: Success Using Contingencies to Create Effective Social Skills

Developed by Hill M. Walker, Hyman Hops, & Charles R. Greenwood

General Description: SUCCESS consists of four separate packages or programs designed to assist teachers in managing four behavior disorders that are commonly encountered in grades K-3, and that contribute to school failure and developmental adjustment problems:

- CLASS (Contingencies for Learning Academic and Social Skills), a set of procedures for modifying the classroom behavior of acting-out children to increase their academic achievement and decrease the frequency of maladaptive interfering behaviors.

- PASS (Program for Academic Survival Skills), a behavior management program to increase academic survival skills (e.g., following such classroom rules as working on assignments and following directions) and achievement.

- RECESS (Reprogramming Environmental Contingencies for Effective Social Skills), a program used in classroom and playground settings to reduce the frequency of socially aggressive-negative behaviors and increase appropriate peer-to-peer social interactions.

- PEERS (Procedures for Establishing Effective Relationship Skills), a program to remediate the socially withdrawn behavior of students by increasing the amount of time they spend interacting with peers.

Target Population: Though developed for behaviorally disordered students in grades K-3, a large urban school district reports that the program can be effective in general and special education classes in grades 4 and 5.

Implementation Considerations: SUCCESS is designed to be implemented with standard curriculum programs. District personnel are trained to serve as consultants to train and work with classroom teachers. Consultants need two days of training for PASS, and one each for CLASS, PEERS, and RECESS. Classroom teachers require up to ten hours of training for each program. Teachers and students retain their traditional roles of instructional leaders and learners respectively. The target student's peers play a critical role in improving social interactions in the PEERS and RECESS programs.

Program Effectiveness: All four programs have been extensively field-tested. CLASS has proven effective in producing dramatic and relatively long-lasting gains in the behavior of acting-out students in the regular classroom. PASS produced significant improvements in student behavior and maximizing student engaged time. RECESS produced treatment effects that are superior to those normally available for socially aggressive-negative students. PEERS was effective in improving the frequency and quality of the socially withdrawn student's social behaviors, though the gains have not been conclusively demonstrated to be durable.

Costs: Major program costs are those associated with the orientation and training of core program staff. In 1990, Consultant Trainers charged $750 per day, plus travel and per diem, for training groups of up to 15 persons.

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SUCCESS: Success Using Contingencies to Create Effective Social Skills 2/21/92

Developed by Hill M. Walker, Hyman Hops, & Charles R. Greenwood

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I. INTRODUCTION

The SUCCESS Program Series consists of four separate programs that are designed to improve the social behaviors of behaviorally disordered students in grades K-3 by focusing on four behavior disorders commonly encountered in the primary grades, i.e., acting-out disruptive behavior, low academic survival skills, social aggression, and social withdrawal. These four disorders, which have been consistently identified through factor analytic studies of problematic child behavior in school settings, contribute to both school failure and developmental adjustment problems. The four SUCCESS programs are:

- CLASS (Contingencies for Learning Academic and Social Skills), a classroom behavior management program for acting-out students.
- PASS (Program for Academic Survival Skills), a classwide behavior management program for disruptive classrooms.
- RECESS (Reprogramming Environmental Contingencies for Effective Social Skills), a behavior management program for children with "bullying" behavior.
- PEERS (Procedures for Establishing Effective Relationship Skills), a behavior management program for children with socially withdrawn behavior.

Developed from 1971-79 by Hill Walker, Hyman Hops, and Charles Greenwood at the Center for Research on the Behavioral Education of the Handicapped at the University of Oregon (CORBEH), these programs have since been modified and packaged for sale through Educational Achievement Systems. The development and validation of these four programs was supported by a continuing federal grant from the U.S. Office of Special Education Programs.

A. Purpose and Goals of SUCCESS

The primary purpose of the SUCCESS program is to assist teachers in managing the difficult behaviors of students. More specifically, the goal is to improve the social behaviors of students in grades K-3. (One large urban school district has extended SUCCESS to regular and special education classes in grades 4 and 5. Staff in this district report that the program is effective at these upper grade levels, though it works better in grades K-3 because the younger students have not had the chronic behaviors as long as the older students.) Each of the model's four programs makes a specific contribution to this major purpose and goal. Specific goals of each program within SUCCESS will be discussed below.

B. Key Principles Upon Which SUCCESS is Based

The SUCCESS model is based on the following key principles:

- Behavioral techniques can be used as a highly effective intervention to change students' inappropriate behaviors.
- Contracting between the student and teacher is an important intervention procedure.
- Group contingencies and social rewards can be powerful in reducing inappropriate behavior.
- The follow-through with the student's family and regular teacher in rewarding the appropriate school behavior is key to the long-term success of the program.
- With the assistance of a consultant properly trained in behavioral techniques, a teacher can implement these behavior change programs.

C. Contribution to Mainstreaming

The SUCCESS Program Series was developed to meet the behavioral needs of students in general education settings, i.e., classrooms and playgrounds. The four programs have been implemented and researched with special education students in general education classrooms. Through successful completion of the SUCCESS programs, students develop control over their inappropriate behaviors, which subsequently lead to improved academic and social behavior in the classroom and in unstructured social settings.

II. SUCCESS DESCRIPTION

The four separate programs that comprise SUCCESS are described below. Though each of these programs has a different focus, all four are similar in that they all are scripted, have fade out procedures, are validated, and require teachers to focus on and reinforce students' positive behaviors. The teacher works with the consultant to set up contracts (using procedures that are spelled out in the SUCCESS manuals) with parents and the student. The consultant backs off (fades out) over time and the teacher takes over. Specific time frames and daily procedures for using the consultant model are spelled out in each program's Teacher's Manual (e.g., see CLASS and PASS).

A. CLASS

1. Purpose and Goals

CLASS provides a set of procedures, which are based on social learning principles, for modifying the classroom behavior of primary grade acting-out children. Acting-out children are defined here as those children who defy classroom rules, structures, and procedures, and who display high rates of such behaviors as noncompliance to teacher instructions and directions, inappropriate peer interactions, verbal or physical aggression, and destruction of property. Because acting-out children spend considerable time engaged in non-academic pursuits, they are often below grade level in essential academic skills. The main objective of the CLASS program is to increase the acting-out child's levels of academic achievement and to decrease the frequency of maladaptive interfering behaviors. As a result of using this program, it is expected that the acting-out child will become a productive, achieving member of a general education classroom.

2. Development and Foundation

The foundations of the CLASS program were provided by the earlier applications of operant and social learning theory by Hill Walker and Jerry Patterson. Walker developed an intervention model for acting-out children in an experimental classroom setting and investigated the effects of model components on student outcomes (Walker, Mattson, & Buckley, 1971; Walker & Buckley,1974). Problems in generalizing intervention effects from experimental to general education classroom settings were also studied (Walker & Buckley, 1972; Walker, Hops, & Johnson, 1975). Patterson's (1972) work in developing a home-school intervention package also contributed to CLASS.

A three-stage development process, carried out over a 4-year period, was used to produce and evaluate the CLASS program. The three interrelated stages included research in experimental settings, regular education settings, and field-test settings.

In the first stage, the authors worked with acting-out children in an experimental classroom setting to identify economical and effective techniques that would be instrumental in changing the students' behavior. Results of this one-year effort suggested that a combination of teacher praise, token reinforcement with backup rewards for appropriate behavior, and response cost (loss of earned points contingent on inappropriate behavior) was highly effective in modifying the behavior of acting-out children.

During the second stage of development, the intervention procedures were adapted for use in general education classrooms. The following components were found to be important when implementing CLASS in general education settings: (a) a contracting procedure; (b) parent involvement; (c) group contingencies; (d) teacher consultant assistance in implementing the program; and (e) a systematic schedule for fading the intervention components. In the third stage, the revised CLASS program was field-tested in three school districts across the country.

3. Description of CLASS

The CLASS program is designed to be implemented in the general education classroom; however, special education teachers have adapted it for use in their self-contained c[illegible]ooms. It is highly recommended that a consultant (e.g., principal, assistant principal, consulting teacher, resource room teacher, school psychologist, school social worker) be available to assist the general education teacher in using the program. The program requires a total of 30 school days for full implementation with the consultant heavily involved in the first 5 days of the program. Daily summary charts that identify program implementation responsibilities each day are provided for both the consultant and teacher.

Teachers typically use CLASS with only one or two students at a time because of the effort required to implement it. Using CLASS with more than one student at a time can be difficult, especially for a teacher who does not have an aide. However, the teaching skills used with the one or two students are generally carried over to the whole class.

CLASS is a set of procedures instituted by a consultant who employs rewards (social approval and points) to shape such appropriate classroom behaviors in acting-out children as following directions, attending to teacher and following instructions, talking quietly, and working at proper times. Aggressive, destructive, or non-compliant behavior results in temporary removal from the classroom. Points earned at school are exchanged for group activity rewards and backed up with a home reward system. Control of the program is turned over to the teacher, who gradually fades out the point system and maintains appropriate behavior by contingent social praise.

The program is divided into a pre-intervention phase and two intervention phases. During the pre-intervention phase, the consultant evaluates the referral by observing the student in the classroom, reviewing teacher ratings of the child, and interviewing the child, teacher, principal, and parents. The program manual provides a set of instruments and related instructions to assist in determining whether or not the CLASS program should be used as an intervention. Should the decision to use CLASS be reached, then the manual provides a comprehensive set of procedures for introducing the program and gaining commitments for its use by classroom teachers, administrators, the student, and parents.

The first intervention phase, lasting 5 days, requires intense consultant involvement in the classroom. The intervention procedures use a green/red point card (a 5" square card made of heavy weight construction paper) that is used for monitoring the student's progress. On the green side of the card are the student's target behaviors, a place to record earned points, and a space for the teacher and parent signatures. Listed on the red side of the card are any behaviors which resulted in the student being removed from the classroom, and a place to record points that were lost for not following classroom rules. When the green side of the card is showing, the student earns points (in other words, he/she is behaving appropriately); when the red side of the card is showing, the student is not earning points because he/she is engaging in inappropriate behavior.

The green/red point card is used extensively during the early stages of the program. During the first five days, the consultant is responsible for marking the point card. During the first day, the student is reinforced during two 20-minute sessions on a variable interval schedule, starting with an interval of 30 seconds on the first day (possible 40 points can be earned per session). On day 5, the feedback interval is extended to 6 minutes during the two 30-minute sessions (possible 5 points earned).

To earn a reinforcer, the student must obtain 80% of the total number of points possible for each session on the green/red card. Social praise from the consultant and/or teacher is paired with the earned points. When a student is successful, the entire class earns a group activity reinforcer (e.g., game or free time). Additionally, the student receives an individual reinforcer at home (e.g., extra outdoors play or TV viewing). If the student does not earn the required number of points during a session, teachers are instructed to make an announcement to the class that the student has not earned enough points for a reinforcer, but that he/she will have another chance to earn points during the next session.

In the second intervention phase, the classroom teacher operates the green/red point card. By this time, the teacher has learned to use the two key techniques required of the program:

- **Scanning:** the practice of looking around the room to obtain a picture of ongoing activities. Scanning at frequent intervals enables teachers to spot a variety of behaviors, and to gain a better idea of the overall functioning of the target student. Frequent scanning also increases the opportunity to give additional praise to the target child as well as other students who model appropriate behavior.

- **Praising:** pairing praise while giving points on the green/red card increases the value of adult praise for the child.

From day 8 through day 20, points are awarded on a variable interval 10-minute reinforcement schedule. By day 20, the points and backup reinforcers have been faded; however, the teacher continues to praise the student for appropriate behavior every 10 minutes.

In the CLASS program, a child must succeed at each step of the program before going on to the next. For some students, the change in requirements from one day to another is too great. If the student experiences failure, the CLASS program recycles to an earlier level of successful performance.

Additionally, the authors describe what to do in other situations in which the student does not earn the required number of points. Some students simply "forget" that they are committed to the program. For these students, reminders of the formal contractual agreement are reviewed to get students back on track. Some students, however, might have difficulty as a result of being unable to discriminate between behaviors which earn points and those which lose points. In this case, remedial attention might be necessary. In some cases, noncompliance can result when the reinforcer selected is not reinforcing. Here, a standard solution would be to determine with the child a more suitable reward. Finally, some students typically "test" the program to see if what everyone had said would happen actually does. Systematic procedures are included for dealing with students of this latter type.

4. CLASS Curriculum, Equipment, Materials, and Supplies

- A cassette-filmstrip package that provides an overview of the CLASS program ($75.00).

- Teacher's CLASS Kit for teachers who are acting as their own consultant; this kit contains the CLASS Manual and a CLASS Consumables Packet of forms required to run the program ($44.95).

- Consultant's CLASS Kit that is for consultants who will be working with several teachers; this kit contains the CLASS Manual, CLASS Teacher's Manual (Consultant Model) and a CLASS Consumables Packet ($49.95).

- CLASS Consumables Packet that contains extra CLASS forms for one student application ($14.95).

5. CLASS Evidence of Effectiveness

Field testing occurred in three school districts (see Hops, Walker, Fleischman, Nagoshi, Omura, Skinrud, & Taylor, 1978, for details). The results of this testing showed that consultants could be effectively trained to use the CLASS program procedures and that acting-out students who received the CLASS program made significantly greater gains in appropriate classroom behavior than did matched control students.

The long-term durability of the CLASS program and its potential power to decrease the need for further special education services was also studied. A review of school records for the students who had participated in the field tests showed a significant reduction in special education services required by the children over a three year period as compared to control students (Hops & Walker, 1988).

6. CLASS In Action

What follows is an example of the CLASS program in action. The reader is advised that implementation of the program will span a minimum of 30 school days.

Following the teacher's referral, the consultant meets with the teacher and the student, Kenny. Kenny is having difficulty exhibiting appropriate on-task behaviors. The consultant explains the program to Kenny and leads a discussion in which Kenny selects a reinforcer. The consultant joins Kenny's class and tells the class that he is beginning a program that will help Kenny improve his behavior. The teacher consultant explains the program and invites the class to help Kenny succeed. The children are then told that if Kenny succeeds, they will all receive a reward activity that Kenny has picked for them. The reward is then identified.

The teacher begins the lesson (e.g., math). The consultant sits next to Kenny and keeps track of his behaviors on the green/red card. Kenny exhibits positive behaviors and is rewarded by marks once every 30 seconds on the green side of the card. For a moment, Kenny lapses into an inappropriate behavior. The consultant turns over the card to its red side and shows it to Kenny. He accepts the cue, and returns to behaving appropriately. The consultant then flips the card back to the green side.

During the session, the teacher acknowledges Kenny's appropriate behaviors. At one point, the teacher even makes the mark on the green card.

At the end of the session, the consultant totals the points and announces that Kenny has earned the reward, which the class shares in at the end of the period. Kenny is praised by the teacher and consultant. The children at Kenny's table smile at him, as they enthusiastically play the game that Kenny chose for the day.

Each consecutive day, the program advances to the next stage. Eventually, the teacher will have full control of the program. Following is an example of what a visitor might see once the teacher has taken over full program control.

The children are sitting at their seats and the teacher is having them practice borrowing problems. As the teacher writes a problem on the overhead, the students are asked to independently solve the problem, then share it with the whole-class when called upon. In one hand the teacher holds the green/red card, which is showing green to the students. As Kenny participates appropriately, the green side continues to be shown. Occasionally the teacher calls out a praise to Kenny. At one point, Kenny leaves his seat. The teacher turns over the card and cues him. He returns to his seat and re-engages the learning process. The card is then returned to the green side.

At the end of the session, the teacher informs Kenny that he has earned the required number of points for the day. She announces that he is now only one day away from having enough points for a popcorn party for the whole class.

B. PASS

1. PASS Purpose and Goals

Children with behavioral disorders have considerable difficulty coping with academic demands, not simply in mastering curricular material, but in adapting to expectations of the school environment. PASS is a behavior management program which was developed to improve in this group of youngsters such related academic skills as appropriate responding, asking directions, and attending to task. Though PASS involves all students in a class, it specifically targets students who are deficient in these academic survival skills.

2. PASS Development and Foundation

Several studies have found that certain behaviors are positively correlated with standardized achievement test scores. For example, Lahaderne (1968) found that measures of student attention were correlated with achievement and intelligence test scores. Cobb (1972) coined the term "academic survival skills" as a result of his findings that attending to academic task, compliance, volunteering, and talking to peers about academic material were positively correlated to standardized achievement test scores.

A second line of research has been directed at attempts to increase survival skill behaviors and academic achievement through direct teacher interventions. Studies by Cobb and Hops (1973) and Hops and Cobb (1973) with first graders showed that increases in survival skill behavior and standardized achievement could be produced by having the teacher directly reinforce survival skill behavior during reading instruction. These initial findings demonstrating that an intervention designed to improve classroom survival skill performance during instructional periods would also increase achievement were later confirmed in three studies (Greenwood, Hops, & Walker, 1977; Hops & Cobb, 1974; Walker & Hops, 1976).

Another study investigated the program components of the basic PASS intervention (Greenwood, Hops, Delquadri, & Guild, 1974). The results of this study indicated that major improvement to the 80% level and above was found when positive reinforcement in the form of teacher praise and preferred activities was given based upon systematic improvement.

3. PASS Description

The PASS program involves all students in the classroom and uses a game in which time for preferred activities can be earned by a class for following established survival skill rules. Classroom rules, a special timer (a clock with a light to show when appropriate behavior is not occurring), and rewards for appropriate behavior are gradually faded so that natural social contingencies (e.g., teacher praise for appropriate behavior) exert control over changed student behavior.

In its simplest form, the PASS program involves the following classroom components:

- A clocklight instrument to record class survival skill level.
- A list of class survival skill rules.
- A graph of class survival skill behavior (i.e., following classroom rules such as working on assignments, following directions, attending to the teacher, and talking appropriately).
- A group reward or reinforcer for improvement in class survival skills.
- Teacher praise and approval as an immediate survival skill consequence.

The PASS program, which is managed by the classroom teacher, is designed for use with a consultant assisting in the classroom implementation of the procedures. It is implemented in five stages:

- **Preliminary assessment:** the consultant observes in the classroom to determine if PASS would be useful. If students' survival skills fall below 50%, then a decision is made to use PASS.

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- **Teacher baseline:** this involves observations of the group's survival skills during the daily academic periods when the program is to be in effect. The teacher observes and records group survival skills using a clock and light timing instrument to record and graph the cumulative time students display their survival skills and to signal the students that their behavior is appropriate. (One district excludes those students who purposely try to turn off the time-on-task clocklight.)

- **Full program:** the teacher presents the classroom rules to the students, continuing to use the clocklight to record and signal the amount of time all members of the group are following the rules. The light is turned off and the clock stops whenever a student breaks a rule. When students' performance improves, the whole class receives an activity reward, preferably immediately after a daily goal has been reached. After the group's skill rate reaches 80% for three consecutive days, the frequency and immediacy of the reward is changed to every other day. Eventually, the class must work for five consecutive 80% days before earning a reward. The full program is in effect from 25-45 consecutive school days, depending upon the rate of classroom change and the number of daily periods involved.

- **Program fade-out and removal:** the clocklight, survival skill rules, and class bar graph are systematically and gradually removed from the room as the class demonstrates the ability to meet the performance goals set by the program. The major responsibility for the program is transferred completely to the teacher, who relies primarily on his/her use of contingent praise and approval to maintain the students' survival skill level.

- **Maintenance and generalization of program effects**: all program materials have been removed from the classroom and the teacher is now concerned with randomly checking the student's survival skill level twice a week, using a stopwatch, to insure a continued high survival skill level. In addition, the teacher checks his/her own praise rate to insure continued reinforcement of student survival skills. If a drop in performance is noted, three reprogramming options are available to the teacher to regain the previous 80% level.

In addition to learning to use the clocklight while teaching, teachers must master the contingent use of attention and praise. There are four basic praising tactics used in the PASS program:

1. Group callout praise for the entire class or group-- "Good going class! You're all following the rules and the clocklight is on."

2. Callout praise for an individual student so that all can hear--"I see Steven getting right to work."

3. Quiet private praise of just one child--Teacher gives child a pat on the back and says, "You're working quietly, Sally."

4. Callout praise to a child acting appropriately in order to prompt the same survival skill for a child demonstrating inappropriate classroom behavior--"Mike and George are sure helping by writing their spelling words" (Used to prompt David, who sits near Mike, to write his words).

The goal is to use at least one type of praise a minimum of once per minute. Teachers are also taught to scan the room by moving and looking around.

Two teachers who used PASS offer the following advice to their colleagues: "(1) PASS seems like a lot of work, but it is not; (2) learning the program will be difficult and it will take 2 or 3 days to learn; (3) it improves students' behavior; the students like it and will get better grades; (4) students like to use the stopwatch and "be the consultant;" (5) it can be used with any curriculum; and (6) it is important to role play with the class to prepare them for PASS or CLASS."

Staff in a district that tried using PASS with self-contained special education classes report that it is especially difficult to use the program in that setting. The self-contained classes often have a larger number of students who are chronically misbehaving and off task. Students in a regular class are also more apt to be working for social praise, whereas students with emotional disabilities may care little about social praise. In some cases teachers must exclude from the program, those students who are purposely "turning off the on-task-light" in order to punish the rest of the class (i.e., by preventing them from gaining access to extra recess time as a reward). Furthermore, it was reported that special education teachers may have more difficulty restricting their praise of students to conform to the PASS guidelines. .

4. PASS Curriculum, Equipment, Materials, and Supplies

- PASS Information Presentation Cassette-Filmstrip Package that provides an overview of the program ($75.00).

- PASS Clocklight with remote control switch. A time clock and time-on-task light costs about $25.00, and the remote control device used by the teacher to control the clock is about $100.00.

The PASS program uses a consultant model that requires consultant training, and the materials listed below can only be purchased by a person who has been trained by a certified consultant trainer. For that reason, the prices have not been included.

- PASS Consultant Manual that describes the consultant's role, skills required, and activities to be carried out to initiate a successful program.

- Consultant Trainer's Transparency Packet that contains all of the transparencies required by the consultant trainer to complete a workshop.

- Videotapes (under revision) that demonstrate the program and are to be used primarily in training the consultants.

- PASS Teacher's Manual that describes in step-by-step fashion the six skill areas required to carry out the program (i.e., understanding the survival skill concept; specifying survival skills; recording survival skills in the classroom; using positive group reinforcement; using teacher social consequences to strengthen behavior; fading out and maintaining program effects).

- PASS Consumables Packet that contains forms and materials required for implementation.

5. Evidence of PASS Effectiveness

During the 1975-76 school year, a field study was conducted in two sites to evaluate the utility of PASS (Greenwood, Hops, Walker, Guild, Stokes, Young, Keleman, & Willardson, 1977). Results indicated that the PASS program experimental groups increased appropriate classroom behavior, as measured by direct behavioral observations, to significantly higher levels than for controls who were not exposed to the program. Teachers also reported general satisfaction with the program and students rated the program as satisfactory.

Subsequent field tests and replication studies have shown PASS to be highly effective in improving rates of appropriate classroom behavior, reducing inappropriate behavior, and increasing teacher's use of positive behavior management procedures in the classroom (e.g., Hops, Greenwood & Guild, 1980; Greenwood, Hops & Walker, 1977; Greenwood et al., 1979). Moreover, comparison studies demonstrated that children in this program showed rapid and significantly greater acquisition of classroom survival skills and significantly greater gains in reading and math achievement than did their control-group cohorts.

6. PASS In Action

The description that follows is an example of how the PASS program might appear in action.

At the teacher's request, the consultant meets with the teacher to discuss the problems that students in her class are having staying on task and completing work. The problem occurs primarily during the reading class when students are required to complete seat work while the teacher works with small reading groups. The consultant makes observations of the class during the reading class and finds that the students are spending approximately 40% of the time on task and 60% of the time talking to one another, wandering around the room, sharpening pencils, etc. The decision is made to implement the PASS program and the teacher and consultant meet to plan and prepare for implementation. The teacher, with the help of the consultant, lists the specific classroom rules she wants her students to follow. Through three meetings with the consultant the teacher learns to identify and record survival skills using the clocklight. Following these three meetings the teacher introduces the consultant and the clocklight to the class. For the next three days both the consultant and the teacher collect baseline data before implementing PASS. In a fourth meeting held during the baseline period the consultant and the teacher work together to identify reinforcers for the class. On the fourth day, the teacher has put up the Classroom Survival Skills bulletin board with the rules. She tells the students how the program works and presents the class rules. For the next six days of the program the consultant visits the classroom daily but the teacher takes more responsibility for the program with only feedback and assistance from the consultant. After this period the consultant makes only intermittent visits to the class to check on progress and help the teacher with any specific problems. Two additional training meetings are held to help the teacher develop skills in praising and socially reinforcing the students as well as to plan for program fade out and maintenance.

A visitor to the classroom during PASS implementation might see the following. Upon entering the class one would quickly notice the prominently displayed clocklight at the front of the room. Also, at the front of the room would be the bulletin board which contains the class rules and the graph which displays how the students are progressing in maintaining their skills. During reading class the teacher may be seen working off to the side with a small group of students while the remainder of the class is in their seats completing assigned work. The clocklight is on and the class is working quietly. The teacher comments to the class that she really appreciates the way the class is working. As different students in the small group read aloud, the teacher can be seen scanning the entire class to see that everyone is on task. Two students in the rear of the class begin whispering to each other and the clocklight goes out. The teacher comments on the appropriate behavior of the student in front of the two talking students. This prompts the students to return to their work and the clocklight goes back on. At the end of the reading class, the teacher goes to the bulletin board to compute the percentage of time the students were on task using their survival skills. The class follows her directions and sits quietly waiting for the results. She turns and praises the class for improving their percentage of time on task from the previous day and tells the class they can have 10 minutes of free time before beginning their math work.

C. RECESS

1. RECESS Purpose and Goals

RECESS is designed for use with socially aggressive-negative students. These students appear to have learned a behavior pattern that is based primarily on the aversive control of the behavior of others. In developing the RECESS program, the authors identified a set of seven behavioral responses that discriminate between socially aggressive-negative children and their peers. These responses serve as the primary criteria used in identifying children for the RECESS program. Compared to their peers, these students exhibit much higher rates of the following types of behaviors: disturbing others; responding to teasing with angry, aggressive behavior; arguing; displaying physical aggression toward objects or persons; speaking to others in an impatient or grouchy tone of voice; and saying uncomplimentary or unpleasant things to other children. The primary goals of RECESS are to reduce the frequency of socially aggressive-negative behaviors and to increase appropriate peer-to-peer social interactions.

2. Development and Foundation

From a thorough review of the literature, in addition to their own research, the authors concluded that (a) the available evidence on techniques for remediating child aggression seems to indicate that cooperative behavior may be a key ingredient in developing a pattern of positive social interaction among these children, and (b) a combination of positive reinforcement procedures for positive interactive behavior and mild punishment procedures for socially aggressive-negative interactive behavior may be necessary to effectively change the child's overall behavior patterns. Both of these considerations were systematically applied to the RECESS program.

During program development, research was conducted to ensure that the model components were effecting the desired outcomes. The RECESS manual describes in detail these studies which demonstrated that RECESS could reduce socially aggressive-negative behavior (Walker, Hops, & Greenwood, 1988, pp. 14-25).

3. RECESS Description

Using a set of procedures similar to the CLASS program, RECESS combines social skills training (both for the target child and peers), social and token reinforcement of appropriate behavior, in addition to fines and timeout for inappropriate behavior to reduce young children's aggressive, disruptive, and negative social interactions. Positive social behavior is taught first on the playground, then in the classroom. Group and home reinforcement programs are tied to these procedures. RECESS also uses a consultant model, but there are adaptations for teachers who do not have consultants available.

The RECESS program procedures are designed primarily for use in playground settings during regularly scheduled recess periods. The program procedures can be extended to the classroom if the child is experiencing social or behavioral problems in that setting as well. A consultant (e.g., counselor; school psychologist; resource teacher; social worker) assumes responsibility for setting-up the program, gaining control of the child's playground and/or classroom behavior, and training playground supervisors and teachers to operate the program effectively on their own.

The RECESS program consists of four sequential phases:

- **Recess only:** the program operates only during the child's recess. During this phase, the consultant operates the program during days 1-7 and the playground supervisor operates the program under consultant supervision during days 8-10.

- **Classroom extension:** the program is extended to the classroom if necessary, and lasts approximately 15 days.

- **Fading:** during this phase, which lasts about 15 days, the major program components are eliminated with the goals of making the program easier to manage and reducing the child's dependence on external procedures.

- **Maintenance:** this phase continues indefinitely and consists of a low-cost variation of the full intervention procedures.

The basic RECESS intervention program in turn consists of four components.

1. Training in Socially Appropriate Behavior

This first step in the intervention process involves teaching the student to discriminate between four separate response classes: positive social verbal behavior; negative social verbal behavior; positive social nonverbal behavior; and negative social nonverbal behavior. Examples of each response class are defined and modeled for the child. After the child has mastered this training, the consultant, with the assistance of the child, delivers similar training to the child's peers.

2. Response Cost Point System

The student starts off with one point for every 5 minutes of recess time. A point is subtracted each time the student breaks a rule or is socially aggressive-negative. The task for the student is to retain as many points as possible by being polite and cooperative with others and by following the playground rules.

3. Praise

During phase 1, praise is delivered frequently and immediately for the child's positive interactive behavior during recess periods. Initially, all praise is delivered by the consultant. Later, the supervisor and teacher assume this responsibility.

4. Group and Individual Contingencies

If the target child meets specific behavioral criteria during recess periods throughout the day, a group activity reward is made available to the entire class near the end of the day. In addition, the child can take the points earned and exchange them for an individual reward at home. The consultant assists the parents in constructing a reward menu and monitors its implementation during the program.

4. RECESS Curriculum, Equipment, Materials, and Supplies

- A cassette-filmstrip package that provides an overview of the RECESS program ($75.00).

- Teacher's RECESS Kit that contains the RECESS Manual and a RECESS Consumables Packet of required forms ($49.95).

- Consultant's RECESS Kit that contains the RECESS Manual, RECESS Teacher's Manual (Consultant Model), and a RECESS Consumables Packet ($54.95).

- RECESS Consumables Packet that contains the forms and materials required to run the RECESS program on one student ($14.95).

5. Evidence of RECESS Effectiveness

The RECESS Program was developed and tested in three separate but interrelated stages (Walker et al., 1988, pp. 15-25). In the first stage, carefully controlled research was conducted with two groups of socially negative/aggressive children during the 1975-76 academic year. The results of this stage indicated that a combination of teacher praise, token reinforcement, and response cost was extremely effective in reducing negative/aggressive behavior.

The Stage 2 research was conducted over two academic years. During the first year (the 1975-76 academic year), seven experiments involving nine target children were conducted in various combinations of general classroom and playground settings. The results of these experiments indicated that:

- It was both feasible and effective to concurrently use group activity rewards at school and individual rewards at home.

- There was no difference in the effectiveness of two forms of awarding and subtracting points for appropriate and inappropriate behavior (response cost delivery), respectively.

- The number of times that points are awarded can be drastically reduced with only minimal effects upon the student's behavior.

- Procedures were developed, using a point card, for extending the intervention procedures to classroom and playground periods throughout the school day.

- Though there was clear evidence of the generalization of intervention effects to nonintervention periods in some of the experiments, researchers could not conclude that such effects would occur as an automatic result of exposure to the RECESS program.

- Mixed findings were also reported regarding the maintenance of intervention effects after program termination, i.e., some target children maintained their behavior while others did not.

During the 1976-77 school year, the second year of Stage 2, a standardized intervention package was applied to the behavior of a sample of 10 socially negative/aggressive children in grades K-3. The findings from the first year's experiments were incorporated into this final package. The procedures were implemented first in each child's respective playground periods and later extended to the classroom. The Stage 2 results demonstrated the power of the RECESS program in reducing socially negative/aggressive behavior. Furthermore, in most cases the target child's negative/aggressive behavior remained within normal limits after playground supervisors assumed control of it.

The RECESS program was field tested (Stage 3) during the 1977-78 school year in the Portland, Oregon Public Schools to determine whether school personnel, who are employed in school districts as consultants, would be able to implement the RECESS program effectively following an intensive three-day training workshop. The determinant of effectiveness was the extent to which target children's behavior changed as a result of exposure to the RECESS program. A total of 12 consultants were trained, and 24 socially negative/aggressive children (12 experimental and 12 control) were selected from K-3 general education classrooms to participate in the study over a three-month implementation period. Ten experimental and ten control children completed the study. The researchers concluded that (1) consultants can be trained effectively to operate the program within an intensive 3-day training workshop and (2) trained consultants can apply the program procedures with a degree of precision which results in a treatment effect superior to that normally available for socially negative/aggressive child behavior in grades K-3.

6. RECESS in Action

The following is an example of how RECESS might develop and be implemented for a child in a first grade classroom.

Mrs. Neal, a teacher consultant trained in the RECESS program, asks to speak briefly at a teacher's meeting to inform the staff about the program. She leaves Referral Search Letters with the teachers. Mrs. Locke, one of the first grade teachers, contacts Mrs. Neal the next day to find out more about the program and gives her the completed referral checklist. She is concerned about a boy named Mark, who is very aggressive on the playground and does not have any friends. He is always teasing the other children, calling them names, and starting fights if other children don't do what he wants. Mrs. Neal meets with Mrs. Locke to talk about Mark and the program. At this stage Mrs. Neal goes over the program in detail and reviews the responsibilities that Mrs. Locke would have if Mark is determined to be eligible for the program. After Mrs. Locke understands the program and her part in it, Mrs. Neal asks her if she is still interested and wants to procede. Mrs. Locke decides that she wants to try RECESS. At this point a letter, available in the program materials, is sent to Mark's parents to obtain permission to continue with the assessment of eligibility. Mrs. Locke is given a rating scale which contains 33 items on which she rates Mark's behavior. This rating suggests that Mark may qualify for the program. After seeing these results, Mrs. Neal schedules time to observe Mark and record his behavior.

The observation results also confirm that Mark qualifies for the program. Now, Mrs. Neal meets with the parents and gets their support and the home rewards arranged. She talks to Mark about the program. She presents a social skill training session to Mark in which she describes the difference in positive and negative social behavior and he has a chance to practice positive social behaviors. Mark understands that he will be given 4 points at the start of the recess period (1 point for each 5 minutes of the 20 minute period). During recess he can gain bonus points by positively interacting, but for every negative interaction he loses a point. These points can be used for individual and group rewards. The individual rewards are provided by Mark's parents and Mrs. Locke arranges the class rewards.

On the next day, Mrs. Locke describes the program to the class and Mrs. Neal presents the social skill training lesson to the class. The program is put into effect that day and Mrs. Neal goes to recess with the class. She carries the point card. As she observes Mark she praises him for good behavior and gives him a bonus point when he let another boy be first at a game. When Mark begins to argue with another child she immediately tells him that his arguing behavior has cost him a point. After monitoring Mark's behavior for the first 7 days, Mrs. Neal turns the point card over to a teacher's assistant who normally supervises the children at recess. The assistant was trained by Mrs. Neal the week before and knows about the program and how to mark the point card. The program will continue for approximately 3 weeks. During this time, the consultant continues to monitor the program and makes intermittent observations on the playground and offers assistance to the playground supervisor and Mrs. Locke as needed.

At the end of this time Mark's behavior has improved and the procedures will be gradually faded. Mark's behavior during each recess will receive either an overall yes for "quite good behavior" or a no. Daily rewards will no longer be given, but Mark can save yes days to trade in for a reward. This phase of the program also lasts about 3 weeks. The next phases continue the systematic fading process until no special procedures are being used. At each point of change in the program, the consultant explains the changes to Mark, Mrs. Locke, the playground supervisor, and Mark's parents.

D. PEERS

1. PEERS Purpose and Goals

PEERS is designed for use with socially withdrawn children. The major goal of the program is to increase the amount of time these children spend interacting with their peers. To reach this goal, attention is paid both to increasing the child's social skills and to involving the peer group.

2. PEERS Development and Foundation

A review of the research literature on intervention procedures for socially withdrawn children showed that various combinations of modeling, coaching, instruction, praise, and a token economy can be used to successfully increase the proportion of time withdrawn children spend in social interaction with their peers and/or to increase the child's social acceptance by the peer group.

These treatment variables were operationalized and functionally analyzed in experimental classroom settings. The results of the findings from these experimental classrooms were packaged and tested in general classrooms in a series of studies that took place over a period of three years. Revisions were made each year based on the previous year's findings. The overall results of this series of studies is a comprehensive and effective program for increasing the social interactions of children who display low rates of social behavior and are at risk for behavior problems (Hops, Fleischman, Guild, Paine, Street, Walker, & Greenwood, 1978, pp.7-15).

3. PEERS Description

The PEERS program uses peer modeling and approval to increase the social interactions of children who display low rates of social behavior and are therefore at risk for behavior problems. Critical social skills (i.e., responding appropriately to peer social initiations, initiating interpersonal interactions, maintaining interactions, cooperating with, and reinforcing others) are taught to both a target (withdrawn) child and peers on the playground and in the classroom. Improvements in social interactions between the child and his or her peers earn rewards for the entire class.

The major components of the program include:

- **Social skills tutoring:** the consultant provides direct instruction in social skills (e.g., initiating interactions; responding to initiations; maintaining interactions; being positive with others; and playing appropriately) to the student and a classmate. This training lasts for three days.

- **Joint task activities:** during this time, the student interacts with a different classmate each day in a 10-minute structured activity arranged by the classroom teacher. The activity provides opportunities for turn-taking and verbal interaction among students. Joint task activities include those which are academically related (e.g., flashcards), and some that are nonacademic (e.g., games). The teacher supervises the pair and provides descriptive praise for appropriate social behavior. The points the child earns for appropriate social behavior during this time are exchangeable for a group reward to be shared by all classmates at the end of the day.

- **Recess point system:** each day, prior to recess, the entire class selects a reward from a list. Three to four special helpers are chosen to assist the target child with earning points. These special helpers are asked to engage the child in a specific activity during recess. If the child earns the number of points required for the group reward, the accomplishment is announced immediately following recess. If the child fails to earn enough points, the consultant provides immediate feedback and might engage in some coaching. The child also takes home the point card every day so his/her parents can provide praise.

- **Self report:** this program component requires the child to give a verbal report to the teacher about the play activities during recess. The child is rewarded for accurately reporting on her or his social behavior. The accuracy of the report is verified by the peer helper.

PEERS is implemented by a consultant and a classroom teacher. It is typically used with one student at a time per teacher, especially if the teacher does not have an aide. The consultant has primary responsibility for introducing and operating the program. Initially, this involves screening the child to determine eligibility, presenting the program to the teacher and parents, and introducing the program to the class. The consultant's primary involvement in the program's operation includes coaching the student and classmates in specific social skills and operating the point system during recess periods.

The teacher's participation centers around classroom activities, assigning the child and peers to specific tasks, checking the child's verbal self-report after recess, and dispensing the rewards that the child earns for the entire class. In addition, the teacher praises the child throughout the day for any observed or reported social interaction. The total time required for this intervention ranges from 15-30 minutes daily for 10-40 days, depending on the severity of the child's behavior.

All program components used in the PEERS program are gradually withdrawn. This removal of program procedures is conducted systematically in six steps. Withdrawal of program components cannot begin until the child has completed a minimum of 10 days on the RECESS point system and has interacted at or above the upper level criterion for her/his grade level for the last three consecutive days.

4. PEERS Curriculum, Equipment, Materials, and Supplies

- A cassette-filmstrip that provides an overview of the PEERS program ($75.00).

- Teacher's PEERS Set that contains the PEERS Manual, Social Skills Tutoring and Games, and a PEERS Consumables Packet ($49.95).

- Consultant's PEERS Set that contains the PEERS Manual, PEERS Teacher's Manual (Consultant Model), Social Skills Tutoring and Games and a PEERS Consumables Packet ($54.95).

- PEERS Consumable Packet that contains forms and materials required to run the PEERS program on one student ($14.95).

5. Evidence of PEERS Effectiveness

As previously stated, PEERS was tested and modified in a series of experimental studies that were conducted over a period of three years (Hops, et al., 1978, pp. 9-15). In the first year, a series of six experiments was conducted. These studies involved five girls and one boy, all of whom were selected as being socially withdrawn based initially on teacher nominations and confirmed by at least five days of observation data. The Year 1 results suggested that (1) recess was a more appropriate intervention setting than an academic period for increasing social interactive behavior, (2) the individual contingency/group reward condition was as powerful and more cost effective than any of the other contingencies, and (3) the joint task procedure could be used to increase teacher approved, interactive behavior within the regular classroom setting without interfering with more academic objectives.

In Year 2, the intervention components shown to be most effective previously in Year 1 were combined into a single package and tested on a new group of children. Six more primary grade level withdrawn children were selected and each received the entire PEERS package. The results were somewhat variable. Children who performed the best were those with some level of social skills, including one child who had been socially unresponsive in the school setting with near zero rates of social interaction. The program was found to be less effective for the three children who lacked social skills and/or showed deficits in motor coordination, language, and other skill areas.

Taking into account these findings, two new components were added to the program to improve initial acquisition and to assist in the maintenance and generalization of gains. That is, social skills tutoring was added to provide direct instruction in social skills, and a self-report procedure was included in an attempt to program in the generalization of gains to other periods of the day and hopefully establish greater durability of effects after the program had been terminated. The revised package was tested on three children in Year 3. The overall results of this test suggested that the package is comprehensive and powerful. The three children tested showed similar responses to the procedures. The social skills training was generally enjoyed by target students and had an immediate effect on their behavior in the primary recess. The individual contingency/group reward and the joint task procedures continued to operate reliably. And the self-report component appeared to program generalization to nonreinforced settings with minimal effort for the teacher.

6. PEERS in Action

The following is a description of how PEERS might develop and appear in action in a classroom.

Mrs. Smith is a first grade teacher who has concerns about one of her students. Jenny is very withdrawn and rarely interacts with any of her classmates. Even on the playground she tends to isolate herself and plays alone. After allowing time for Jenny to adjust and seeing no change in her behavior, Mrs. Smith speaks to the school counselor, Mr. Jones. The counselor works with Mrs. Smith in completing a referral form describing Jenny's behavior and together they decide on a time for the counselor to come observe Jenny at recess.

After completing his observation of Jenny and looking at the information supplied by Mrs. Smith, Mr. Jones is able to compare Jenny's behavior to other children her age. He determines that Jenny's social interaction level is below the norm for her age and grade. Mr. Jones tells Mrs. Smith about the PEERS program and the two of them agree to try the program with Jenny. Mr. Jones contacts Jenny's parents to obtain permission and describe the program to them. Her parents are encouraged to reinforce and reward Jenny at home. On the first three days of the program, Mr. Jones begins by teaching the social skills of initiating, responding, and maintaining interactions to Jenny and one of her non-withdrawn classmates. He comes to the classroom and takes Jenny and the other student to his office for the 20 minute lessons. In the classroom Mrs. Smith has arranged a 10 minute joint activity for Jenny and another student to participate in together later in the day. Mrs. Smith has chosen some activities that are in the program materials, but at times she substitutes an activity that she developed herself. She makes sure that these activities require Jenny to take turns with the other student and to talk, at least minimally.

In the next phase of the program, the RECESS Point System, Mr. Jones and Mrs. Smith talk to Jenny and tell her they are concerned that she does not have many friends. They explain that they would like to help her to interact more with her classmates. Mrs. Jones tells Jenny how she can earn points by playing and talking more to her classmates at recess. These points can then be exchanged for a fun activity or reward for the entire class. The program is then explained to the class and they are given suggestions for how they can help Jenny on the playground. Each day several students are assigned as special helpers to assist Jenny in earning her points. Mr. Jones comes to the playground and observes Jenny and her classmates offering prise when they are doing well. He keeps a tally of Jenny's interactions and reports back to Mrs. Smith after recess. In addition, Jenny reports back to Mrs. Smith about her recess activities. If Jenny met her goal then Mrs. Smith offers the class their special activity. If Jenny has not met her goal then this is stated and the regular class schedule is resumed. The ultimate goal for Jenny is to interact at a criterion level based on the normal level for her age and grade. The program is continued gradually increasing the daily goal until the criterion level is obtained. After Jenny has achieved this level and maintained her interactions for 3 days, the program begins to be gradually and systematically removed.

A visitor to Jenny's classroom would observe Mrs. Smith reviewing the goal before recess. At recess, Mr. Jones would be on the playground with a clipboard counting Jenny's interactions and praising her. When the children return to class, Mr. Jones would hand Mrs. Smith a card with the number of interactions and a few notes about what Jenny did that day. Jenny would have 1 to 2 minutes to tell Mrs. Smith about her recess play. Mrs. Smith would check Jenny's report against Mr. Jones' notes and may prompt Jenny if she has difficulty describing her play. Mrs. Smith would report to the class that Jenny met her goal and the class would be excited. The class had picked a reward that day of having a special story time and Mrs. Smith would begin to read to them.

III. SUCCESS IMPLEMENTATION

A. Participant Roles

The participant roles specified below apply to all four of the programs in the SUCCESS series.

1. Students

In all four programs, the students retain their traditional roles of learners. The programs assist them with learning the appropriate skills and eliminating inappropriate behaviors which result in success in the classroom. The target child's peers play important roles in assisting in improving social interactions of target students in the CLASS, PEERS, and RECESS programs; therefore, they must be directly involved in the intervention procedures.

2. Teachers

The classroom teacher retains the traditional role of instructional leader in the classroom. During the early stages of the program, the teacher interacts with the materials and procedures under consultant supervision. Once mastered, the program's procedures become part of the teacher's instructional routine.

For some teachers, the behavioral philosophy underlying the CLASS program may not fit with their own philosophy of teaching and learning. For these teachers, the intervention might appear intrusive or not appropriate given their teaching style. If such teachers voice strong objections to their participation in the application of the program, then it probably should not be used.

Some teachers have remarked that it is difficult initially to implement the program while instructing the students on academic content. The program requires them to be conscious of their selective attention and reinforcements during instruction (which some teachers find difficult to do).

3. Administrators

Administrators are expected to support teachers and pupils who are participating in the intervention. They can support teachers by providing release time and other incentives for planning, training, and meetings. They can also assist in supplying school based reinforcers.

4. Parents/Community

In all cases, parents should be involved in the initial discussions regarding their child's participation in a particular SUCCESS program. When possible, parents should be involved as reinforcers of their child's behavior by providing home rewards (e.g., extra dessert, access to movies, extra TV time, etc.). Though active parent involvement is preferred, the SUCCESS programs can function without it by using an adult at school to act as a "surrogate parent" and deliver home rewards in the school setting where feasible. School staff (e.g., guidance counselor, principal, or another teacher) who are there every day can assume this role. Staff in one district recommend having 2 or 3 persons serve in this role to ensure that a surrogate parent is always available. One district that has been using the CLASS program has developed a list of suggested home rewards for parents and assists parents in selecting and implementing appropriate rewards. Also, the "school only" portion of the SUCCESS programs can be used and acceptable program outcomes still achieved.

B. Implementation Requirements

1. Planning

There are several steps that must be completed prior to implementing a SUCCESS program. First, a decision must be made as to who will be responsible for implementing the program. While it is possible for an individual teacher who is trained in the techniques to conduct the program, generally the program is initiated in a school district by one or more staff who serve as consultants (e.g., school psychologists, special educators, or counselors). These staff should arrange for training in the programs and become proficient in implementing the techniques.

Because the program requires a large time investment from the individuals who serve as consultants, the district might choose to hire paraprofessionals to assist in this role. Under the direction of the professional consultants, these individuals can conduct the day-to-day aspects of the program. It should be noted that a decision to hire new staff has fiscal implications that must be addressed in the plan.

Arrangements can be made to present the model in an inservice workshop presentation to interested administrators and teachers. A typical forum for this is the building-level staff meeting. Here, the consultant or other staff person involved in the program describes the types of problems that the program addresses, provides a brief overview of the program, and invites teacher participation. In one district, it was decided to forego this workshop offering and hand-pick teachers to serve as consultants and start using the program. These consultants worked one-on-one with novice teachers to help them learn the program.

Although teacher self-referral is a possibility, the suggestion to try the SUCCESS programs with a particular student is often initiated through a recommendation by a consultant (i.e., school psychologist, counselor, or special educators). Once referred, the teacher and the consultant work together to plan the program's implementation. The consultant trains the teacher, and together they contact the parents. The program is implemented and the outcomes are monitored and reviewed. In cases where a playground supervisor or another non-teaching staff member is involved, the same planning procedures are followed.

Because communication between the teacher, principal, and family is important, communication strategies must be established. Regular communication opportunities also must be provided. Principals can be supportive in arranging for meeting time for their teachers involved in a SUCCESS program.

Record-keeping strategies should also be developed. In addition to keeping individual student records, schools may want to record information regarding the program's impact on the school. For example, if the district uses SUCCESS as a prereferral intervention, then the frequency of special education referrals could be analyzed to determine if use of the program has reduced or increased referrals. Initially, planning time will be needed to put the referral process into place. This will involve training the staff on how to refer students, and training consultants on how to follow-up on the referral and how to agree on a decision for implementing the program in a given classroom. Once the referral process to be used is in place, no additional planning at the organizational level is needed.

2. Training

Initial and follow-up training of the district's consultants is provided by consultant trainers (e.g., the developers of SUCCESS or one of their cadre of trainers). One day (6 hours) of training is recommended for each of the CLASS, PEERS, and RECESS programs, and two days for PASS.

In 1990, Consultant Trainers provided this training for a daily fee of $750.00 plus travel and per diem. One Consultant Trainer can train a group of up to 15-20 persons.

The consultants, in turn, train the classroom teachers in their district/school. The amount of training time required per classroom teacher varies with the ability of participating teachers and the specific program selected for implementation; however, a three-day commitment per program is generally recommended. This training time may be spread over several calendar days, e.g., a total of six teacher training meetings of about two hours each are recommended over the 25 to 45 day time span required to implement PASS.

Program manuals, which have been written to enable teachers to use them with little training, should be read and studied before initiating the program. The manuals contain scripts, specific intervention procedures, and implementation guidelines, and should be mastered by participants. Ideally, newly trained consultants begin working, as partners to ensure that they are implementing the program appropriately. If consultants are not used, consultant trainers should train the classroom teachers. Once teachers have been trained, it is expected that the behavior management procedures will become part of their repertoire of regular teaching behaviors.

Due to the complexity involved in implementing the CLASS, PASS, PEERS, and RECESS programs, schools might limit initial implementation to the CLASS program. For example, staff in a large school district that uses all four programs recommend that CLASS and PASS be applied at least three times with regular education classes before applying them in special education settings. Also, after three applications in regular education, the consultant can build off this experience and move into PEERS and RECESS.

3. Staffing

To implement the SUCCESS programs with a consultant requires that the organization support this role. The consultant is usually someone serving in a direct consultative or service role to classroom teachers, e.g., resource teachers, instructional team leaders, counselors, and school psychologists. In one district, consultants were paraprofessional behavioral consultants.

Consultants in one district using CLASS recommended that the program have a district level coordinator whose only responsibility lies with the CLASS program. The rationale for this suggestion lies in the need for support of the consultants. A consultant can become very lonely and isolated. Often there is a need for help when making decisions or problem solving on a case. Someone who has a certain degree of authority, CLASS program expertise, and who has time to supervise the program in this way would enhance the district staff's performance.

4. Facilities

No special facilities, other than a room for staff training is needed.

5. Curriculum, Equipment, Materials, and Supplies

Initially, materials in the form of training manuals, consumables, and equipment (e.g., the clocklight for the PASS program) will be necessary. No change to the curriculum is required. The SUCCESS programs are designed to be implemented in conjunction with the standard curricula found in general education classrooms. The specific materials with associated costs for each individual program were described under each program's description. (The costs reported were taken from the Educational Achievement System's 1991 catalog).

6. Classroom Arrangement

Although no special room arrangements are required, teachers must plan for the addition of the consultant in the classroom for brief periods of time, i.e., daily early in the program and intermittently later in the program.

7. School and District Organization

Since the programs are designed to assist students in becoming more successful in general classrooms, no special organizational features are required.

IV. MONITORING IMPLEMENTATION OF SUCCESS

A. Students, Classroom, and Building Level Outcomes

Effectiveness of the model is determined by the success of the student in reaching program goals. Moreover, as the SUCCESS model developers have made use of ongoing evaluation outcomes, a carefully documented record of student performance is available.

B. Overall Program Implementation

When an individual teacher uses the SUCCESS programs, overall success is determined by improvement of student behavior. When the program is implemented by a formal district level body, such as a pupil personnel services unit, then district-wide monitoring efforts can be implemented. For example, the percentage of students who remain in general education classrooms after undergoing a SUCCESS program can be compared to the percentage of students who did not receive the intervention.

V. EVIDENCE OF SUCCESS EFFECTIVENESS

Field tests were conducted for all four programs during the development and testing of the SUCCESS programs. To cope with logistical problems encountered in field testing, the investigators implemented several procedures, i.e., careful selection of field sites, identification of an on-site local program coordinator, careful negotiation with the site regarding the conditions of field testing, development of program manuals and materials packets necessary for program implementation, training of field test participants in a 3-day inservice workshop, and monetary compensation to participants for the additional time and effort expended in the training and implementation process. Results of field tests on the individual programs were described in previous sections under each program's decscription.

Studies relevant to developing and testing of a consultant training package were carried out to determine whether (1) the skills required to operate the SUCCESS programs can be taught to teacher-consultants in a two to three day workshop, and (2) whether the workshop training results in significant behavior changes of the students to whom the procedures are implemented.

The authors of the SUCCESS Programs received a two-year research grant from the U.S. Office of Special Education Programs to systematically evaluate training formats for instructing SUCCESS program consultants in both the conceptual and behavioral mastery of the procedures of these intervention programs (H. Walker, personal correspondence, September 4, 1991). This study was carried out in three school district sites in Oregon, Washington and Colorado. The CLASS program was used as the vehicle for investigating this question.

At each site, ten consultants were assigned to one of the following groups: (1) a self-training group, in which all training materials were made available to the participants; (2) a traditional workshop group, in which the CLASS program developers trained the participants in a regular workshop and (3) a mastery workshop group, in which consultant participants were trained to criterion mastery on the CLASS program materials, as well as ten specific competencies which the developments identified as essential for high fidelity implementation of the SUCCESS programs. The training sessions in each site lasted two working days. Following training, each consultant identified two students who qualified for the CLASS program and randomly selected one of them to receive the CLASS program. Teacher ratings and direct observations were used to evaluate the success of the consultant's application of the CLASS program.

Results indicated powerful intervention effects for the students who received the CLASS program across each of the three consultant training groups. There were no significant differences among the three training-format groups, which indicates that motivated consultants are capable of training themselves in the CLASS program, and probably the other three Success programs as well, in order to successfully implement these programs.

VI. SOURCES OF ADDITIONAL INFORMATION

For additional information about SUCCESS, including training for the programs and the names of referral sites that are currently implementing SUCCESS and are willing to share their experiences, contact:

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STUDENT TEAM LEARNING (STL)

Developed by Robert Slavin

General Description: STL consists of four whole class instructional methods that engage students in cooperative learning to pursue common academic and social goals. These common goals are to motivate students to learn, enable the instruction of students with a wide range of skills and abilities within a single classroom, improve achievement in basic subject areas, and enhance social skills. Student Teams-Achievement Division (STAD) and Teams-Games-Tournaments (TGT) are general cooperative learning approaches that are adaptable to most subjects and grade levels. Team Accelerated Instruction (TAI) and Cooperative Integrated Reading & Composition (CIRC) are for math and reading instruction respectively. TAI was designed for math instruction in grades 3-6, but it has been used at the secondary level with students who are not ready for more advanced mathematics. CIRC is a reading and writing program for the upper elementary grades. All four STL methods:

- Organize students into heterogeneous four- or five-member teams for cooperative learning activities following a teacher presented lesson.
- Focus primarily on the process of learning, not on the curricula.
- Are based on the concepts of group goals, team rewards, individual accountability, and equal opportunities for success.
- Emphasize that team goals and team success are achievable only if all members of the team learn the objectives being taught.

Target Population: Students of all levels of academic achievement in grades 3-12, including those with mild to moderate disabilities.

Implementation Considerations: A commitment to the concept of cooperative learning is required. Teachers need regular and frequent time for training, ongoing planning, information sharing, and problem solving. Teachers must guide students through group interaction, allow them to work together to learn academic material, and tolerate classrooms that are noisier than traditional classrooms. Students must actively participate in teams and accept responsibility for learning.

Model Effectiveness: STL methods have been studied for more than a decade and have been found to have a positive effect on academic achievement, intergroup relations, acceptance of mainstreamed students with disabilities, and self-esteem.

Costs: Teachers may either purchase reproducible STL materials or develop their own. In 1989, a set of classroom materials for STAD, TGT, and CIRC ranged from $10 to $45 per subject area; a set of TAI materials was $450 per class. Teachers need 1 to 5 days of initial training, depending upon the number of STL methods implemented; ongoing training is not required but follow-up training is recommended. A trainer's daily fee and travel expenses are charged for training provided to groups of up to 100.

STUDENT TEAM LEARNING

Developed by Robert Slavin

I. INTRODUCTION

Student Team Learning (STL) is a series of four whole class instructional methods that are based on cooperative learning techniques in which students are encouraged to work together on academic tasks. In STL, heterogeneous ability teams of 4-5 students work cooperatively to master academic material and are responsible for the team's success as well as their own. The program requires that students not only cooperate with one another but learn as a team, thus creating a social and motivational environment that rewards maximum effort.

The four cooperative learning methods are: Student Teams-Achievement Divisions (STAD), Teams-Games-Tournaments (TGT), Team Accelerated Instruction (TAI), and Cooperative Integrated Reading and Composition (CIRC). Each of these methods is based on four concepts and focus primarily on the process of learning rather than on the curricula to be taught: (1) group goals, (2) team rewards, (3) individual accountability, and (4) equal opportunities for success. Team rewards are earned when the team as a whole achieves at or above a designated criterion. The success of the team is positively interdependent on the success of individual members. It is important to note that teams are not in competition with each other (all teams may earn rewards during a given time period) but compete only with themselves. Team success is based on the individual learning of its members, thus, teammates are motivated to help one another learn. Each student is held accountable for his/her own learning and has an equal opportunity for success since students contribute to their teams by improving over their own past performance. These opportunities for success increase students' motivation to learn.

A. Purpose and Goals of STL

Four STL methods have been designed to provide teachers with strategies for instructing students with a wide range of skills and abilities as well as increasing student motivation to learn. The goals of STL are to:

1. Increase the basic achievement of students including performance on standardized tests of mathematics, reading, and language.
2. Provide teachers with strategies for instructing students with a wide range of skills and abilities within a single classroom.
3. Improve students' motivation to learn.
4. Provide a forum for teaching social skills.
5. Instill in students positive attitudes toward school and the learning process.

STL emphasizes team goals and team success as achievable only if all members of the team learn the objectives being taught. It was designed to serve students of high, average, and low levels of academic achievement in grades 3 through 12. STL has been found to be effective for teaching language arts, mathematics, science, and social studies to students with varying levels of achievement, including students who are academically handicapped (i.e., those with mild to moderate handicapping conditions).

B. Contribution to Mainstreaming

The STL methods have been developed for use in regular education classrooms. Because the methods have been designed for use with high-, average-, and low-ability students, and because the focus of the methods is on cooperative learning, STL has been found to be effective for integrating students with mild and moderate handicaps into general education classrooms. In fact, one of the methods, Team Accelerated Instruction (TAI), was designed for use with mainstreamed learning disabled students. The emphasis of STL on creating heterogeneous student teams, individual accountability, and competition between individuals of similar ability levels is especially appropriate for students with disabilities. STL also provides teachers with more time for instruction and individual assistance since teams assume responsibility for a number of instructional and monitoring activities that have traditionally occupied much of teachers' time.

STL does not appear to conflict with the requirements of P.L. 94-142 in any way. In fact, an STL classroom is an appropriate placement option for students whose needs can be met in a regular class setting with indirect or direct support.

Some schools have implemented STL as a joint venture between regular and special education and as a joint venture between general education and the Chapter 1 reading program. In these schools, general and special education or Chapter 1 reading teachers co-teach using STL methods in the regular classroom.

This co-teacher approach has allowed many students who had previously been served in special education or Chapter 1 resource rooms to remain in their regular classes. The flexibility of STL allows for a variety of creative implementation options to be explored.

C. Development and Foundation

During the early 1970's, research on cooperative learning as a form of classroom organization was being conducted by several different groups, simultaneously and independently. At that time various cooperative learning methods, which refer to a set of instructional methods in which students work together to learn and are responsible for their groupmates' learning as well as their own (Slavin, 1987b), were being developed. David and Roger Johnson's interest in group dynamics training influenced their research on the effects of students working in small, heterogeneous groups to complete a common task (Dr. Robert Slavin, personal communication, February 14, 1989). Elliott Aronson (1978) also approached cooperative learning from an interest in group dynamics. He developed a method called Jigsaw in which individual members of heterogeneous six-member teams serve as "information experts" for unique sets of information on an overall topical unit. Each "expert" teaches their teammates about their particular area.

The group investigation method developed by Sharan (1980) was influenced by his background as a social psychologist. This method involves groups of two- to six-members developing a group project on subtopics selected by the group from a unit being studied in class. DeVries and Edwards (1973) developed Teams-Games-Tournaments (TGT) as a method involves simulation gaming. TGT involves four-member heterogeneous teams studying together to master teacher presented materials. Students are assessed through a system of academic game tournaments, in which students from each team compete against students from other teams.

Robert Slavin became involved with DeVries and Edwards because of his interest in conducting research on motivation and simulation gaming. Slavin and his colleagues believed that students would not learn anything that was not relevant to them. Thus, they tried to simulate relevancy. Because simulation gaming lends itself to small groups, research subjects were organized into groups of four or five. Results of this research revealed that the groups, rather than the simulation gaming, made the difference in creating relevancy. That is, the group members made the material to be learned relevant. The influence of groups on student learning influenced Slavin, who continued the work begun by DeVries and Edwards, to develop the methods comprising STL.

D. Key Principles Upon Which STL is Based

The four STL methods are based on four central concepts.

1. Students must be working toward a group goal. Students must have a reason to take one another's achievement seriously. The achievement of a group goal, with all members of the team contributing, provides the necessary motivation for cooperative learning.
2. Individual Accountability. The team's success depends on the individual learning of all team members. This encourages teammates to tutor one another and make sure that everyone is adequately prepared for assessment activities.
3. Equal opportunities for success. Students contribute to their teams by improving their own past performance. This ensures that each member is equally challenged to achieve their best.
4. Team rewards. Team members work together to master material at or above a designated criterion. When the team's criterion is reached, the team receives a certificate or other team reward.

II. STL DESCRIPTION

STL consists of four methods or techniques that may be used to teach a variety of school subjects. The methods include Student Teams-Achievement Divisions (STAD), Teams-Games-Tournaments (TGT), Team Accelerated Instruction (TAI), and Cooperative Integrated Reading and Composition (CIRC). All four methods involve organizing students into learning groups of 4-5 members, awarding of team points to provide group motivation, and individual accountability for learning. STAD and TGT are general cooperative learning methods adaptable to most subjects and grade levels. Both use four- or five-member learning teams that are mixed in performance level, gender, and ethnicity. In STAD, student teams focus on mastering the content of class presentations so that each member of the team will do well when assessed on the material. The class presentation may include direct instruction or a lecture-discussion conducted by the teacher, or an audiovisual presentation. Following the lesson, students work within their teams to make sure that all members have mastered the material. Students may engage in tutoring, group discussion, and joint problem solving. Once the group is confident that all members have mastered the material, students take individual quizzes to contribute points to their team scores. High-performing teams earn certificates or other forms of team rewards or recognition.

TGT is similar to STAD in that mixed learning teams engage in cooperative learning activities following a teacher presented lesson. However, once teams have mastered the material, students compete as representatives of their teams in academic tournaments rather than taking quizzes. Students compete with members of other teams who are like them in past performance to assess their mastery of content and contribute points to their team scores.

Team Accelerated Instruction (TAI) also uses four- or five-member, mixed ability teams, and certificates awarded for team success. However, TAI is specifically designed for math instruction and is most often used in grades 3- 6, although it has been used at the secondary level with older students who are not ready for more advanced mathematics. Although the original interest in developing TAI was in improving the achievement of mainstreamed learning disabled students, the developers soon realized that almost all elementary classes contain students with a wide range of skills and could benefit from TAI (Slavin, 1987A). Students are pretested and placed at the appropriate point in the individualized program. For the most part, students work on an individual curriculum and teammates check each other's work against answer sheets and provide help when problems arise. Final unit tests are taken without teammate help and scored by student monitors. In addition to the individualized program, teachers provide daily instruction to small groups of students working on the same skill. The small group instruction is designed to teach mathematics concepts and to help students understand the connection between the mathematics they are doing and familiar, real life problems. Team members add to their team score based on the number of units completed in a given week. One of the main benefits of TAI is that teachers are free to spend more class time teaching since team members take responsibility for checking each others work.

Cooperative Integrated Reading and Composition (CIRC) is the newest of the STL methods and is a program for teaching reading and writing in the upper elementary grades. Students follow a sequence of teacher instruction, team practice, team pre-assessments, and quizzes. CIRC materials are available for use with most basal reading series and many novels, teachers can use their district's basal reading series and/or novels, organizing reading groups as necessary. For example, the CIRC materials for the Ginn Basal Reading Series have been designed to accompany the specific stories included in the series. Students are assigned to teams composed of pairs from two different reading groups. While the teacher is working with one reading group, students in the other group engage in a series of activities such as summarizing stories with one another, discussing ideas, identifying the main idea, and practicing spelling, decoding, or vocabulary. A final independently written composition is completed in language arts. Students take a quiz for each story once their teammates have determined they are ready. Individual assessments are also completed for vocabulary and spelling. Team rewards are given to teams based on the average performance of the entire team on reading and writing activities.

III. STL IMPLEMENTATION

A. STL in Action

To illustrate what goes on in Student Team Learning classes, "snapshots" of hypothetical classrooms are presented below for each of the STL methods.

CIRC. It is Friday morning at "Cooper Elementary School." In Ms. Thompson's third grade, the students are getting ready for reading. They are sitting in teams at small tables, four or five at each table. As the period begins, Ms. Thompson calls up the "Rockets" reading group for a lesson. Pairs of students from several of the small groups move to a reading group area, while the remaining students continue working at their desks. In Ms. Thompson's class the students at their desks are working together on activities quite different from the usual workbooks. They are taking turns reading aloud to each other; working together to identify the characters, settings, problems, and problem solutions in stories; practicing vocabulary and spelling; and summarizing stories to one another. When Ms. Thompson finishes with the Rockets, they return to their groups and begin working together on the same types of activities. Ms. Thompson listens in on some of the students who are reading to each other and praises teams that are working well. Then she calls up the "Astros," who leave their teams to go to the reading group.

TAI. Meanwhile, in Mr. Fisher's fifth grade, it is math period. Again, students are working in small teams (but in math) and each team member is working on different materials depending on his or her performance level. In the teams, students are checking one another's work against answer sheets, explaining problems to one another, and answering each other's questions.

Mr. Fisher calls up the "Decimals" group for a lesson. Students working on decimals leave their teams and move to the group area for their concept lesson on decimals which is designed to help the students understand the connection between the mathematics they are doing, in this case decimals, and familiar, real life problems. When the lesson is over, the students return to their teams and continue working on decimals.

In Mr. Fisher's class there are five learning disabled (LD) students, who are distributed among the various teams. The special education resource teacher, Ms. Walters, is teaming with Mr. Fisher. While he is giving lessons, she is moving through the class helping individual students. At other times, Ms. Walters gives math lessons to groups of students who are having difficulties in math, including her five LD students, while Mr. Fisher works with students in their team areas.

STAD. In Ms. Jackson's fourth grade class students are working on spelling. Yesterday, Ms. Jackson taught a lesson on forming possessives to the whole class. As today's period begins, the students in all the teams work together to practice the new skill. Ms. Jackson distributes worksheets and worksheet answers to the teams, and announces that students will have thirty minutes to study before taking a quiz. In the teams students complete the worksheet together, checking their answers as they go. At the end of thirty minutes, most of the teams have completed the worksheets and Ms. Jackson asks the students to stop work and move their desks apart. She then hands out a ten-item quiz which students complete on their own. The individual scores for each team member contribute to the overall team score.

At the end of the day, teachers award certificates to teams that did outstanding work that week. Those teams that met the highest standards of excellence receive "Superteam" certificates.

TGT. Mr. Stanton's sixth grade class is preparing for a social studies tournament. Students are moving to their assigned ability group tournament "tables" (actually, the tables are groups of 3 desks facing together). Each of the nine tournament tables has a game sheet consisting of questions about the unit the class has been studying, an answer sheet, a deck of numbered cards, and a game score sheet. The game begins with students at each table drawing cards to determine the first reader, i.e., the one with the highest card. Reader #1 picks a numbered card and reads aloud the corresponding question. After the reader gives an answer, the student to his or her left has the option of challenging, and giving a different answer, as does the third member of the tournament table. When all have challenged or passed, the answer sheet is checked. Whoever was right keeps the card. If the reader is wrong there is no penalty but if either challenger has answered incorrectly they must return a card to the deck if they have one. All tournament tables continue playing the game until the deck of cards is exhausted. Each player counts the number of cards he/she has and enters the total on the game score sheet. The scores for each tournament player contribute to his/her team's total score. Mr. Stanton announces the team standings for the week and also reassigns students to new tournament tables for next week's tournament based on their performance today.

B. Participant Roles

1. Students

STL requires students to become active participants in the learning process since they must learn to work cooperatively in teams with their class peers. One of the strengths of STL, according to school personnel who have used the methods, is that the responsibility for learning is placed on the student. Students are responsible for participating in team activities, helping teammates, completing assignments, and participating in team recitation and discussion. Visits to STL classes found students to be active participants in the learning process, e.g., student teams were observed studying together to prepare for a unit test, partner reading, checking each others work, providing individual assistance, encouraging teammates to complete homework assignments, and problem solving. Teammates also provided immediate and frequent feedback to one another, monitored each others progress, and reinforced on-task behavior.

In one school visited, where CIRC has been in place for several years, teachers reported noticeable gains in the area of written expression. During the 1988-89 school year all ninth grade students were administered the statewide writing competency test with all (including those with and without disabilities) but two students passing. School personnel also indicated that teams have accepted responsibility for keeping up with assignments for absent team members. Teachers reported that this has saved them time because teammates explain and help the absent teammate when he/she returns. STL also has noticeable out-of-class benefits in the area of student social skills. For example, schools using STL methods have reported that new friendships have formed, students appear to enjoy school and feel successful, and students frequently resolve conflicts by using cooperative strategies. It should be noted that, according to some teachers, the point competition among groups has not been found to be an essential or necessary component for implementation success.

2. Teachers

The role of the teacher is one of instructor and facilitator. Teachers are responsible for (a) introducing and "teaching" the material to be learned; (b) assigning students to teams and, within teams, to pairs; (c) developing the cooperative skills of teams; (d) monitoring student progress; (e) reinforcing and rewarding individual and team successes; and (f) facilitating the operation of teams.

As with most instructional methods, STL may not be suitable for every teacher. Teachers must be committed to the concept of cooperative learning and to the principles of STL. They also must be willing to tolerate some noise in the classroom since students must spend time working together (tutoring, discussing, problem solving, reading orally). There are no special scheduling requirements. STAD and TGT may be incorporated into the daily class activities as desired by the teacher. TAI would be used in place of other math programs and would be scheduled as the teacher deems appropriate. CIRC is designed to accompany the basal reading series. It is suggested that CIRC activities be scheduled for at least one and one half hours per day.

3. Administrators

Although implementation of STL does not require the direct involvement of administrators (i.e., principals and district supervisors and directors), their understanding and support of STL are critical. Discussions with personnel involved in the implementation of STL methods revealed that successful implementation depends on the support of school administrators, particularly the principal. In addition to general support, teachers indicated that regular and frequent planning, problem solving, and sharing times for involved teachers are essential and that administrative support will help assure that such time is made available.

4. Parents/Community

STL is an educational practice that has potential for educating diverse learners within the school setting. As with any new or innovative practice, it is recommended that parents be made aware of and support the use of STL.

One of the visited districts asked parents to give their written permission to the school permitting their child to participate in the newly implemented CIRC program. This approach was successful in informing parents and in making participation in the CIRC program appear to be a special privilege.

One concern that may be raised by parents is that their child's progress may be impeded by placing him/her in a group with lower achieving students. However, practice has demonstrated that the teams provide opportunities for individual students to actually achieve more than in traditional classroom settings because they are allowed to compete with their own past performance.

Teachers who have used STL report that nearly all students attain increased levels of achievement (teachers of CIRC indicate this is especially noticeable in the area of written expression). In the initial planning for implementation, time must be scheduled to introduce STL and address the concerns of parents.

C. Implementation Requirements

1. Planning

In general, implementation of STL requires planning and preparation on the part of school personnel. In preparing to implement STL, districts should: (a) determine which STL method(s) can best meet their needs; (b) decide which grade level(s) are to be involved; (c) select personnel and schedule training; (d) identify funds for training and materials; (e) schedule teacher planning time; and (f) inform parents. Discussions with school personnel who have implemented one or more STL methods recommend that the implementation plan contain a schedule for phasing in the method(s). They also suggest that full implementation be phased in over a 2- to 3-year period.

Once STL is implemented, it is important that teachers be provided with regularly scheduled and frequent time for joint planning, problem solving, and sharing of information. It also may be helpful for teachers to share materials and units they develop following the STL methods. A central "library" of STL materials could be established thus reducing the amount of time individual teachers would need to spend creating STL units (e.g., social studies units could be divided equally among grade level teachers rather than having each teacher develop his/her own materials for each unit). Administrative planning will be required to facilitate the scheduling of planning time and material development.

2. Training

Special training is necessary for implementation of STL methods because teachers must know how to establish and facilitate team learning. Since the role of the teacher becomes one of instructor and facilitator, knowledge about guiding students through group interaction is critical. Additionally, the individual team methods must be learned and materials understood. Initial training of STL can be obtained from certified trainers from the Johns Hopkins Team Learning Project or from certified trainers located across the country. Initial training time ranges from one to five days and is suitable for groups of up to 100 teachers. Training in STAD and TGT can be provided in 1 to 1 1/2 days. CIRC and TAI training each requires 1 1/2 days. It is possible for a few teachers and/or administrators from a school or district to be trained and to then provide training to others in their school or district. Costs associated with training include (a) one and one-half to five days per trainee, (b) daily training fee per trainer plus travel and expenses, and (c) materials needed for training, i.e., teacher manuals and accompanying materials.

Ongoing training is not required. However, it is recommended that follow-up training or staff development be provided as implementation progresses to keep STL at high fidelity. Ongoing training is provided at Johns Hopkins University or can be conducted on-site using local or regional trainers.

3. Staffing

Implementation of STL does not necessarily require additional staff. While additional staff are not required, they may be desirable. For example, in visited districts a significant amount of team and co-teaching occurred. Because there was only one special education or Chapter 1 teacher in some of the schools there was a limited number of classes that could take advantage of teacher teaming. One school had addressed this by having all special education classified students meet in one of the regular classes for daily CIRC instruction.

4. Facilities

The major facility needs for implementing STL is to have desks that can be arranged and rearranged for team work. Individual flat top desks appear to provide the most flexibility. Other than the grouping of desks for team work, there are no special facility requirements.

5. Curriculum, Equipment, Materials, and Supplies

Implementation of STL requires special curricular materials but it does not require any special equipment. Teachers also have the flexibility of developing their own materials following the STL format. The required curriculum materials can be purchased and may be reproduced, therefore, access to reproduction equipment (photocopy or thermofax) is helpful. In an effort to conserve on reproduction costs, some schools have compiled the curriculum materials into reusable student booklets; others have sought and received donated reproduction from local merchants.

Schools interested in implementing one or more of the STL methods will need to purchase materials from the Johns Hopkins Team Learning Project. Starter kits for the initial implementation of TGT and STAD, which include a Teacher Manual and accompanying materials, cost $10.00 (1992 price). Additionally, reproducible STL curriculum materials for use with STAD and TGT covering a variety of subject areas and grade levels may be purchased for costs ranging from $20 to $50 (1992 prices). TAI materials are available in classroom kits which contain sufficient materials for classes of at least thirty students. TAI materials cost $520 per classroom kit (1992 price). CIRC materials range from $25 to $75 per set for reading and $50 for writing and language arts classroom materials.

All four STL methods generally follow a three-step process of instruction, team practice, and assessment. The teacher introduces and teaches the new material to the whole class in the manner he or she finds most effective.

Three of the STL methods (STAD, TGT, and CIRC) may be used with any curriculum materials and textbooks, while TAI may be used to supplant or supplement the regular mathematics curriculum. Teacher guides and student practice and assessment materials may be purchased for all four methods. But teachers also have the flexibility of developing their own materials following the STL format.

While STAD, TGT, and CIRC have been developed to accompany existing school curricula, TAI was developed as an alternative mathematics program. TAI math instruction includes computational skills, basic mathematical concepts, and applications and word problems. Nonconsumable student skill books, teacher's manual, TAI implementation guidelines, unit tests, text and answer keys, review units, and placement components are provided.

CIRC materials include: the teacher's manual; story related worksheets, called "Treasure Hunts" that ask students to identify the characters, the setting and the problem in the story, and to predict how the problem will be resolved; word lists; vocabulary lists; spelling lists; and unit tests.

Teachers and schools interested in implementing CIRC also should consider whether or not they consider complete textbook coverage important. Since the CIRC program involves in-depth study of stories contained in basal reading series, complete coverage (i.e., reading every story) of the basal texts is not likely during the school year. Additionally, teachers who have used CIRC reported that because of the emphasis in CIRC on written expression they have found that they spend more time reviewing and grading student work than they spent prior to the use of CIRC. It should be noted, however, that these teachers felt that students were learning more and spending more time reading as a result of CIRC and, therefore, they were willing to spend the additional time.

6. Classroom Arrangement

Use of STL does not require major changes in classroom arrangements. But, since students work in teams, separate tables for reading and math activities should be available and desks should be able to be arranged for team work.

7. School and District Organization

The use of STL does not require any major changes in school or district organization. However, it was reported by some interviewed personnel that teachers involved in the implementation of STL need regularly scheduled and frequent time for planning, problem solving, and sharing of information for STL to be successful. This was reported as especially necessary during the initial phases of implementation. Additional changes that may be required is the reorganization of the teaching schedules of the special education, Chapter I, and regular class teachers who are involved with implementing STL to accommodate cooperative teaching.

IV. MONITORING IMPLEMENTATION OF STL

A. Students, Classroom, and Building-Level Outcomes

STAD, TGT, and CIRC do not include formal evaluations of student progress. TAI, which can be used as a complete mathematics program does contain unit evaluations. The primary method for evaluating the effectiveness of STL is the use of standardized tests of achievement and subject area chapter and unit tests. A comparison of students' pre-STL and post-STL scores will provide an indication of the program's effectiveness. Additionally, frequent assessments of student progress are built into the STL format.

Teacher observation can also provide evaluative information about the overall effectiveness of STL. For example, teachers who have used STL methods reported that the STL formats, especially the teams and team pairs, provided increased learning time.

B. Overall Program Implementation

Although there is no formal evaluation instrument to assess program implementation, several things can be done to evaluate the overall effectiveness of STL. As noted above, a comparison of pre- and post-test scores on tests of standardized achievement will provide an indication of the program's impact on student achievement. Teachers and students can also be surveyed to determine their level of satisfaction with the program. Observations of student behavior in and out of class will provide further evaluative information about program effectiveness. For example, personnel who have used STL reported a decrease in behavior and discipline problems; also, they reported that students use cooperative learning techniques to solve problems on the playground and in other non-structured situations.

V. EVIDENCE OF STL EFFECTIVENESS

The effectiveness of STL methods has been studied for more than a decade. While the majority of studies have focused on Student Teams-Achievement Divisions (STAD), all four methods have been found to have positive effects on academic achievement in a variety of school subjects (including language arts, mathematics, geography, social studies, and science). Additionally, STL methods have been found to have positive effects on intergroup relations, acceptance of mainstreamed academically handicapped students, self-esteem, and time-on-task. It should be noted that although positive effects on all variables measured were not found in every study, negative effects were almost never found.

A. Academic Achievement

Slavin (1986) examined the characteristics and achievement outcomes of thirty-five studies of STL methods used in various academic subjects and involving students in grades 2 through 12. He found that twenty-nine of these studies (83%) concluded that students in Student Team Learning classes gained significantly more in achievement than did students in traditionally taught classes studying the same objectives. None of the studies found differences favoring control groups. With few exceptions, effects of STL methods have been equally strong for students who were high, average, and low in achievement level, in urban, rural, and suburban schools.

B. Effects on Intergroup Relations

One of the most important effects of STL is its positive impact on development of the friendships among students of different ethnic backgrounds.

Three studies of TGT (DeVries, Edwards, & Slavin, 1978) and five studies of STAD (Slavin, 1977; Slavin, 1979; Slavin & Oickle, 1981; Kagan, Zahn, Widaman, Schwartwald, and Tyrell, 1985; and Sharan, Kussell, Hertz-Lazarowitz, Bejarano, Raviv, and Sharan, 1985) found that students in classes using these methods increased the number of friends they named of a different ethnic group far more than did control students. One of the STAD studies (Slavin, 1979) included a follow-up study of intergroup friendships. This study found that, several months after the studies ended, there were still more cross-ethnic friendships made by students who had been in the STL classes than were made by control students.

C. Acceptance of Mainstreamed Academically Handicapped Students

The research on STL and mainstreaming has focused on the academically handicapped child. The use of STAD was found to significantly reduce the degree to which normal-progressing students rejected their mainstreamed classmates (who were students performing two years or more below their peers) (Madden & Slavin, 1983).

D. Self-Esteem

Students in TGT, STAD, and TAI classes have been found to improve more in self-esteem than do students in traditional classes (DeVries, Lucasses, & Shackman, 1979; Madden & Slavin, 1983; Slavin & Karweit, 1981; Slavin, Madden, and Leavey, 1984; Slavin & Karweit, 1985). Discussions with students involved in CIRC also revealed positive self-images. They reported that the CIRC teams have helped them to achieve better grades and they feel more positive about their abilities to learn.

VI. SOURCES OF ADDITIONAL INFORMATION

Additional information about the Student Team Learning model is available from:

The Johns Hopkins Learning Project,
Center for Social Organization of Schools
Johns Hopkins University
3505 North Charles Street
Baltimore, Maryland 21218
(410) 516-0274

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CLASSWIDE STUDENT TUTORING TEAMS

Developed by Larry Maheady, Gregory F. Harper, Katherine Sacca, and
Barbara Mallette

General Description: Classwide Student Tutoring Teams (CSTT) is a cooperative learning model that uses peer tutoring and team competition to actively involve students in the learning process. CSTT was developed as an alternative classroom management technique to independent seatwork and traditional drill and practice activities; it can be used to teach basic skills in a variety of subject areas, and to promote positive student interactions. Students are placed into small (3-4 members), heterogeneous learning teams. Team members take turns acting as tutors while their remaining teammates are tutees. A structured tutoring process is used for 20-30 minutes, 2 or 3 times a week, to achieve the overall team goal that each team member will learn the material and be prepared for weekly mastery tests. Teams compete for the highest team score and for weekly recognition. Working in teams to attain individual and group goals motivates students to work together and to help and support one another.

Target Population: CSTT is designed for students with a wide range of abilities, from elementary through high school levels. It has been used successfully in regular classes containing mainstreamed students with learning disabilities, behavioral disorders, and mild mental disabilities, as well as in "general track" classes that contain students who have weak academic skills, are disinterested in school, and have difficulty working independently.

Implementation Considerations: Teachers are instructors and facilitators; planning activities and developing materials can place extra demands on their time, and they will need 1-2 days of related training. Students take responsibility for their own learning by participating in team activities and by helping teammates through discussion, correction, and problem-solving activities. Desks must be rearranged for team work. During the tutoring sessions, CSTT classrooms may be noisier than typical classrooms.

Model Effectiveness: There is a body of literature with evidence of the effectiveness of the two models upon which CSTT is based, but CSTT is a relatively new learning technique and only one study of its effectiveness has been published. In this study, it was found that CSTT improved the academic performance of students who have mild disabilities and were mainstreamed in six classrooms in a secondary setting; failing grades were virtually eliminated in these classrooms. Unpublished data gathered at implementation sites in two states indicate that (1) teachers and students preferred the CSTT approach over traditional seatwork and drill methods, (2) students became actively involved in the group work after a short trial period, (3) achievement was increased, (4) inappropriate behavior was reduced, and (5) grades, attendance, and attitudes toward school were improved.

Costs: A variety of training options are available, including half-day awareness sessions for up to 100 participants, full-day workshops for up to 30 participants, and individualized in-class assistance. Videotapes are currently being developed. Costs for a trainer range from $400 to $600 a day (in 1990), plus travel and per diem.

CLASSWIDE STUDENT TUTORING TEAMS

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I. INTRODUCTION

Classwide Student Tutoring Teams (CSTT) is a cooperative learning program that uses teams of students working together to accomplish classroom, learning, and practice goals. CSTT was developed to provide teachers with an alternative classroom management technique to independent seatwork and traditional drill and practice activities. It is designed to actively involve students in the learning process through the use of peer tutoring and team competition.

Students are placed into small (i.e., 3-4 members), heterogeneous learning teams that contain high-, average-, and low-performing students. Team members take turns acting as tutors while their remaining teammates are tutees. A structured tutoring process is used with the overall team goal being that each team member will learn material and be prepared for weekly mastery tests. Teams compete for the highest team score and for weekly recognition.

CSTT was designed to serve students with a wide range of abilities in general education classrooms. It can be used with students from the elementary to high school levels to teach basic skills and factual information in a variety of subject areas, such as spelling, mathematics, science, and social studies. CSTT has been successfully implemented in general education classes containing mainstreamed special education students with learning disabilities, behavioral disorders, and mild mental disabilities. The program also can be used with lower "general track" classes that may contain students who have weak academic skills, are disinterested in school, and have difficulty working independently.

A. Purpose and Goals of CSTT

The CSTT program is based on the primary assumption that if students are given ample opportunities to respond to academic tasks and receive immediate feedback, they will increase their acquisition and retention of information and improve their academic achievement. By having students work in teams to accomplish both individual and group learning and performance goals, they are motivated to work together--helping and supporting one another. Although the main focus of the teams is on academic achievement, the program also is designed to promote positive student interactions.

The primary goals of CSTT are:

1. To improve overall student performance through the retention of basic academic skills.
2. To help students develop cooperative work habits.
3. To increase social interactions and improve interpersonal relationships among students.
4. To provide students with an "enjoyable" method of drill and practice.

B. Contribution To Mainstreaming

The CSTT program is designed for use in general education classes and has been developed for use in classrooms with high-, average-, and low-ability students. Because it can be used with diverse learners, it creates a good teaching environment for all students and appears to have utility for integrating students with mild and moderate disabilities in general education classrooms (Maheady, Harper, & Sacca, 1988). The emphasis of CSTT is on creating heterogeneous ability teams and providing a classroom environment where students take responsibility for their own learning as well as that of their teammates. This can be especially beneficial for students with handicaps who typically need a great deal of teacher assistance in mainstreamed classes and may often be socially alienated.

The development and use of a study guides forces teachers to be explicit about what is important for the students to learn. The use of a team tutoring approach to learning material in the study guides:

- Keeps all team members actively involved so they cannot "drift off" task.
- Provides immediate reinforcement of good responses.
- Provides immediate correction of mistakes.

- Gives each student an opportunity to work with different groups of peers and experience success as a member of a winning team, as opposed to continually failing alone.
- Provides group support and a learning environment that is less threatening to special education students than the more traditional approaches.

CSTT does not appear to conflict with the requirements of P.L. 94-142 in any way. In fact, classrooms where CSTT is employed offer an appropriate placement option for students whose needs can be met in a general education class setting with indirect or direct support.

C. Development and Foundation

CSTT was developed by Larry Maheady and his associates and evolved from studies on peer-mediated instructional approaches conducted during the past 15 years. Maheady originally focused on behavior analysis and studied methods of facilitating social acceptance among students. He was attracted to Greenwood's Classwide Peer Tutoring (CWPT) program in the early 1980s because (1) the program had been demonstrated to be effective in improving academic achievement among low performing students and (2) teachers were willing to implement it. CWPT emphasizes rewarding teams and individual team members with points for academic achievement based on ongoing group and individual performance and success on criterion tests. It incorporates a number of systematic procedures, such as an explicit presentation format, contingent point earning, systematic error correction strategies, and public posting of student performance (Maheady, Sacca, & Harper, 1988). Maheady was also influenced by the Student Team Learning (STL) strategies developed by Slavin, DeVries, and their colleagues at the Johns Hopkins University. STL emphasizes heterogeneous teams of students and rewards teams on the basis of individual student improvement on unit tests.

Maheady combined elements of both CWPT and STL, specifically the format of STL (team assignment procedures and the use of games and competition) and the systematic instructional strategies of CWPT (contingency points and immediate error correction), to develop CSTT. All three of these programs have their theoretical and empirical base for learning teams in the work of Allport, who theorized about and demonstrated the effectiveness of groups for motivating and controlling behavior. In addition, CSTT and STL are rooted in the contributions of Dewey, who emphasized democratic interaction and group problem solving in the classroom. CSTT also shares with CWPT a basis in the work of Skinner and follows his emphasis on ongoing contingency rewards for performance.

By combining features from similar but oppositional group learning programs, CSTT loses the purity of the original programs--a loss that developers believe is offset by increased flexibility and palatability for the average classroom teacher. Although CSTT is not as widely used as STL and CWPT, it has been demonstrated to be effective in a number of school systems in New York, Pennsylvania, Virginia, and Michigan.

D. Key Principles Upon Which CSTT is Based

The following basic principles guide the CSTT model.

1. Small group work motivates and develops learning. Students who work in small groups of three or four support one another, model for each other, teach each other, and encourage each other.

2. Heterogeneous groups encourage interactions across sex, race, and ability. When students interact with students who they normally would not interact with, familiarity is increased, and when these students become interdependent on one another, they learn to support and appreciate each other. These interactions often lead to sociometric changes that demonstrate new and increased friendship patterns among the different students.

3. Students receive ample opportunities to respond and their academic performance is enhanced when they are engaged in learning situations that allow them to respond to functional academic tasks and receive immediate feedback regarding their performance. Typically, student performance become more fluent with increased learning opportunities.

4. Team points are given based on individual student performance. Students earn individual and team points by getting answers correct during the tutoring period. Each answer is worth a specified number of points. Team members' points are added together with bonus points to determine team totals that are posted daily. Team success depends on the individual learning of all team members.

II. CSTT DESCRIPTION

CSTT provides a forum for guided practice that focuses on improving acquisitions of basic skills and factual information in any subject area. The program can be used on a daily basis, but teachers on visited sites reported using it 2 or 3 times a week, usually in preparation for unit tests. For the first one or two days, the teacher presents "new" classroom material or lessons to the entire class. After this, students are assigned to their respective teams (i.e., heterogeneous ability teams typically consisting of three or four members) to work together for 20-30 minutes per day over the next two or three days. Students tutor one another using a study guide (sets of factual knowledge questions with answer key)--based on the instruction provided by the teacher. (A teacher in an inner-city school reported that her students like to take the study guide home for "home practice." In this area doing homework is "not cool" and students are hesitant to carry books home; however, they can fold the study guide and carry it home in their pockets.)

CSTT consists of four major components. First, students are assigned to small (3-6 member), heterogeneous learning teams. Each team is composed of high, average, and low achieving students. Teams should also include both males and females, and students of varying ethnic, cultural, and/or linguistic backgrounds. The program does not have rules regarding the length of time that teams should remain together, but teachers typically create new teams every 4-6 weeks to give students an opportunity to work with greater numbers of classmates.

The second, and most essential, component is the structured tutoring procedure that students use during team practice activities. Using written responses and an error correction procedure that requires students to write the correct answer three times, students overlearn and receive direct practice in recalling information. If the correct answers are long, they should only be written once or twice.

The tutoring session begins by the teacher reviewing the procedural rules and setting a kitchen timer for 20 or 30 minutes. Each team is given one study guide, a deck of numbered cards, and blank pieces of writing paper. One student on each team begins the session by selecting the top card from the shuffled deck. The number on the card designates which practice item is presented to the team. The student seated directly across from the card selector serves as the tutor, and reads the designated item to teammates. Each team member (except tutor) then writes their answer. If answers are correct, then the tutor awards five (5) points. However, if students answer incorrectly, then the tutor (a) provides the correct answer/solution (and rationale when appropriate), (b) requires the erring teammate(s) to write the correct response one to three times (depending upon the length of the response), and (c) awards two (2) points for appropriate error corrections. No points are given if the teammate(s) fail and/or refuse to correct their response. The objective for team members is to work as quickly and accurately as possible. The more instructional items they complete, the more points each student and the team earns.

While students work in their respective teams, the teacher circulates throughout the classroom, providing assistance when necessary, and awarding bonus points to teams who are working well together. Bonus points are also awarded by the teacher to teams who display "cooperative work habits" (e.g., taking turns, getting started on time, moving through materials rapidly, and praising peers) and "good tutoring behaviors" (e.g., accurately using the points and error correction procedure, and explaining correct answers to teammates). Teachers may also award bonus points "for improvement" in order to adjust for competitive differences between groups. After all points are assigned, the study guide is passed to the next student on the left. The same procedures are followed with the tutoring role being rotated following each item. Thus, each student has the opportunity to be the tutor.

The third and fourth major components of CSTT are public posting of student point totals and team recognition/rewards. Following each CSTT session, students total the number of points they have earned, including bonus points, and record the number on the top of their papers. Students' scores are then posted, or displayed publicly, on a laminated scoreboard in the front of the classroom, and daily team totals are calculated. After a minimum of two team-tutoring sessions, students take individual quizzes or mastery tests for which they are also awarded points. Points earned for quizzes and tests are also recorded on team charts. Teams with the most points at the end of a given week are considered the "winners" and receive recognition certificates or other forms of reward. The weekly team competitions and the a point system are important to motivate students to work cooperatively, thus promoting positive socialization among students.

III. CSTT IMPLEMENTATION

A. CSTT in Action

The teacher announces that it will be time for the learning groups in five minutes. The students quickly and quietly move to their same group areas--clusters of three or four desks. One student from each team gathers the materials needed for the group from a table that the teacher has set up. The materials include a study guide and a list of questions about the information that the teacher lectured on earlier in the week, along with corresponding acceptable responses. One student serves as the tutor and holds the study guide in front of him. All remaining team members get ready to write. When the teacher rings the bell to start the 20 minute tutoring session, the room explodes into a crescendo of questions and answers. The tutors ask the questions and teammates write their responses from memory. If the responses are correct, the tutors awards points; if wrong, they respond "no", give the correct response, and require the tutees to write the correct response two or three times. The teacher moves about the classroom, monitoring teams to ensure that procedures are being used correctly and providing bonus points for cooperative behavior. Questions ring through the classroom: "What is a republic?" "Define anarchy?" The children are intent and seem not to be bothered by, or even recognize, what the other teams are doing. Points mount up and some of the speedier teams get through the list and begin again. After each question is answered correctly by a team, the study guide is passed to the next team member on the left. The rotating tutor roles gives all students the opportunity to "teach" and serve in a high status role.

The bell rings and points are totalled; 5 for each right answer, and 2 for each corrected answer, and as many bonus points as were delivered by the teacher. Team members combine their individual totals and discuss their performances. One student from each group approaches the scoreboard that displays the teams' results and records the new levels of productivity. The teacher points to the scoreboard and tells pupils of their performance to date. After two to three days of CSTT practice, all students take quizzes independently. They earn 10 points for each correct answer. Test points are added to daily tutoring points. Each week, the winning team(s) of the week is/are announced and certificates of merit are passed out. (One observed teacher awarded "scholar dollars" to each member of the winning team. These dollars can be used to purchase prizes from the teacher, e.g., lolly pops for $10, jaw breakers for $6, erasers for $8, book markers for $4, and small books for $25.)

Interestingly, when teachers announce that a test covering the material will take place the next day. The students groan, but with smiles on their faces. There is little show of anxiety; there is little cause for it since the students are prepared--they have overlearned and are ready.

B. Participant Roles

1. Students

CSTT requires a change from the traditional student role. Students, rather than teachers, are responsible for checking each teammate's response, awarding and recording points for correct responses, and correcting each tutee's errors by following the error correction procedure. One of the key features of CSTT is that students are responsible for their own learning by participating in team activities, helping teammates through discussion, correction, problem-solving activities, and keeping up with individual and team scores.

2. Teachers

CSTT requires a substantial commitment by classroom teachers to the ideas and principles of the program. It necessitates careful planning and development of activities and materials which may result in demands on teachers' time. The role of the teacher becomes one of instructor and facilitator. Teachers are responsible for (a) establishing small (i.e., 3-4 member), heterogeneous ability learning teams; (b) developing the study guides and planning one or two 20- to 30-minute CSTT sessions per week; (c) introducing and teaching the material to be learned; (d) monitoring student teams to ensure that procedures are used correctly; (e) providing bonus points for cooperative behavior; and (f) recording student and team progress. Teachers using CSTT, however, report that the time invested in planning to implement the model pays off in time saved when students tutor each other.

3. Administrators

Although implementation of CSTT does not require the direct involvement of administrators (i.e., principals and district supervisors and directors), their understanding and support of the program are critical. Discussions with personnel involved in the implementation of CSTT indicated that the program particularly requires principal support. In addition, administrators should be prepared to provide the supervision and inservice necessary to keep CSTT at a high level of fidelity. Unless there is ongoing supervision and support for the teachers implementing CSTT, the program may not be used consistently by teachers and thus become less effective.

4. Parents/Community

CSTT has no direct impact on parents or the community, however, it is helpful to make parents aware of the program and enlist their support when necessary.

C. Implementation Requirements

1. Planning

School personnel must engage in planning and preparation to effectively implement CSTT since the program requires changes in classroom organization and instruction. In general, 2 to 3 days are necessary for administrators to acquire program information, determine which teachers are interested in implementing CSTT, and plan for training and materials development. School personnel who have implemented the program also recommend that planning for supervision and support for teachers is necessary since implementation of CSTT requires teachers to engage in additional planning for student grouping and for material development.

Developers recommend that teachers closely adhere to the CSTT manual during initial implementation of the program. However, once implemented, CSTT is flexible enough so that components of other cooperative learning programs may be incorporated. For example, one-to-one tutoring rather than group tutoring or contingencies other than points can be used.

2. Training

Initial training in CSTT takes 1 to 2 days and can be acquired from the program developer or from local or regional trainers. The developer recommends that, prior to actual training, a 2- to 3-hour introductory presentation be provided for the potential implementers. This would include an overview of the program and its effectiveness. Following the introductory presentation and a decision to obtain training, implementation demonstrations would be provided in the classrooms of those volunteers who are going to be trained in the methods.

Training is essentially on-the-job and on a one-to-one or small group basis. Generally, one trainer spends 1 or 2 days working with volunteer teachers in a given school. Demonstrations would take place concurrent to reading the teacher's manual and conducting group discussions about the program. Time should then be set aside for the teachers to develop lesson units and critique one another. These teachers, if successful and willing, would become the demonstrators and trainers for future users. The developer recommends that the demonstrations (a) take place in the classrooms of those who are interested and (b) be carried out for several days, during which time the teacher/user takes more and more responsibility for the team tutoring activity and the demonstrator/trainer serves as a coach.

A variety of training options are available for those interested in using CSTT. First, the developers offer a one-day (1-3 hours), Awareness Training Session. This session is designed to: (a) provide an overview of the CSTT program and its' effectiveness, (b) discuss commonly occurring problems associated with initial CSTT implementation, and (c) describe practical ways for dealing with such occurrences. Sessions are suitable for up to 100 participants, although larger groups reduce participants' opportunity for active involvement with the program. In addition to the awareness session, the developers also offer a full-day (6 hours) training workshop. In these sessions, participants will be involved in CSTT role-play simulations, engage in study guide development, and receive a handout package containing: (a) CSTT Training Manual, (b) Study Guide Development Checklist, (c) sample CSTT materials, (d) Fidelity Checklists, and (e) Consumer Satisfaction Surveys. The intent of the full day workshop is to provide "hands on" experience and one-to-one assistance to teachers, therefore, it is recommended that sessions be limited to 20-30 individuals. The developers also recommend that school systems send "teams" of educators from the same grade levels, content areas and/or school buildings.

CSTT program developers also offer a variety of optional training packages that school systems may select on an "as needed" basis. The first option is In Class Assistance. This option will provide two to three days of in-class training in the actual implementation of CSTT. Trainers will spend 2 to 3 days working with volunteer teachers in their respective classrooms. Implementation responsibilities will be shifted gradually from trainers to teachers. Previous experience indicates that trainers can work with about six to eight teachers over a two day period and bring them to a high level of mastery on CSTT procedures. Moreover, teachers trained through in class assistance have gone on to become effective on site trainers for their school systems.

A second optional training package involves long-term follow-up. CSTT developers recognize that ongoing implementation of any innovative instructional practice rarely proceeds without error. Therefore, they are willing to "stand behind" their product and offer follow-up assistance for those who wish to use CSTT. Assistance can take many forms depending upon the unique needs of each school system. Typical forms of assistance might include: (a) evaluation of academic and social outcomes associated with CSTT use, (b) response to questions/concerns regarding the efficiency of CSTT implementation, (c) brainstorming possible solutions to recurrent problems, and/or (d) providing suggestions for assessing consumer satisfaction with CSTT procedures and outcomes. In addition, developers can provide suggestions for maintaining and generalizing the use of CSTT procedures within particular classrooms and school buildings.

The final optional training package is designed for administrative personnel. It involves consultation for the purpose of building-wide and/or system-wide dissemination of CSTT procedures. Program developers have explored a number of systematic methods for disseminating and supporting teacher use of peer-mediated instructional methods. Each method, with its potential advantages and disadvantages, can be discussed with individual school systems.

The main costs associated with training will vary depending upon the types of desired services. In general, costs for consultants/trainers are about $400 per day. The one exception is the full-day workshop which costs between $500-600 per day. In addition, there are costs for getting substitutes for two to three days for each staff member who is trained in the use of the program. Program manuals and training videotapes have been developed, and will be included as part of the training package. Manuals and videotapes can also be purchased separately for approximately $29.95 plus shipping costs.

Specific, ongoing training is not required. However, it may be helpful to have follow-up training to ensure that teachers are using the method consistently. This training can be offered through inservice workshops.

Procedural checklists are also available with the training packages. These checklist provide a list of steps required to implement CSTT. Implementation accuracy can be evaluated via direct observation and refinements and/or adjustments in usage can be implemented. Once teachers have demonstrated their accuracy in implementation, they can serve as "on site" trainers for their colleagues.

3. Staffing

Implementation of CSTT does not require additional staff since the method can be implemented with the district's existing staff.

4. Facilities

No special facilities are necessary although the classrooms in which CSTT is implemented must be amenable to various grouping arrangements.

5. Curriculum, Equipment, Materials, and Supplies

CSTT has a minimal impact on school curricula since it is essentially designed to supplement any existing curriculum. However, implementation of CSTT requires that teachers develop study guides to enhance student comprehension of content area material by providing opportunities for active responding by the learner. These study guides adapt text passages and/or teacher presented material for students who may demonstrate difficulty in achievement. For example, the texts may need to be adapted (a) for many students with mild disabilities and/or "slow learners" or "high risk" students who have difficulty reading, organizing, and retaining information, or (b) to highlight critical information necessary for successful performance on evaluations.

The curriculum materials developed by teachers must be reproduced for each respective team and, therefore, access to reproduction equipment is necessary. It is also recommended that a laminated scoreboard be purchased or developed to record and publicly display individual and team points.

6. Classroom Arrangement

CSTT does impact on classroom organization since the primary emphasis is on students working in heterogeneous teams. Therefore, desks that can be arranged and rearranged for team work must be available. Teachers must schedule 20- to 30-minute CSTT periods during the days following initial presentation of a lesson. It should be noted that the CSTT sessions may be noisier than typical classroom sessions since students are engaged in verbal questions, answers, and discussions. Therefore, structured game rules and management procedures may also be needed.

7. School and District Organization

CSTT is a classroom program and has little impact on school and district organization.

IV. MONITORING IMPLEMENTATION OF CSTT

A. Students, Classroom, and Building-Level Implementation

The use of weekly mastery tests and unit exams of individual team members provides teachers with an ongoing measure of student and classroom performance. These tests, along with the team points, allow teachers to very easily monitor how well the class is doing and whether groups or individuals are having difficulty or are performing at high levels of achievement. In addition, student grades and the overall class average at the end of a marking period provide an additional measure of CSTT. Informal teacher observations of changes in student motivation, social interactions, and classroom behavior also provide an indicator of program effectiveness.

B. Overall Program Implementation

Maheady and associates have developed consumer satisfaction surveys for use with teachers and students, and paper and pencil evaluation instruments designed to determine student and teacher attitudes about the use of CSTT. These instruments, available from Dr. Larry Maheady, Department of Education, SUNY-Fredonia, Fredonia, New York 14063, can be used to identify whether or not CSTT is achieving its intended outcomes.

V. EVIDENCE OF CSTT EFFECTIVENESS

CSTT is a relatively new learning technique and there is limited research evaluating its effectiveness. The only published study to date on the program was conducted by the developers who found that CSTT improved the academic performance (in mathematics) of mainstreamed students with mild disabilities in a secondary setting (Maheady, Sacca, & Harper, 1988). Specifically, CSTT procedures resulted in increases in the weekly math test performances of students with and without disabilities who were involved in the study. The use of the program also virtually eliminated failing grades in the six classrooms in which it was used. However, it should be noted that the research took place in classes that were of relatively small sizes (15-20) and that received consultative services from special education staff.

There is a body of literature indicating evidence of effectiveness for the two programs upon which CSTT is based, Student Team Learning and Classwide Peer Tutoring. These two cooperative learning methods have been demonstrated to be effective in increasing achievement, friendship patterns, and self-esteem in a variety of settings (DeVries & Slavin, 1978; Delquadri, Greenwood, Whorton, Carta, & Hall, 1986). Cooperative learning methods have also been shown to be effective in improving the academic skills of special populations of students such as mildly handicapped, Chapter 1 students, and low achieving minority students (Delquadri, Greenwood, Stretton, & Hall, 1983; Maheady & Harper, 1987). Since CSTT is a hybrid version of STL and CWPT and contains many of the components of the two programs, it is reasonable to assume that CSTT can have similar positive effects.

There are unpublished data that have been collected by the developers at CSTT program sites in Michigan, Virginia, Pennsylvania, and New York that indicate teachers and students prefer the CSTT approach over traditional means of seatwork and drill. Teacher surveys indicate that students become actively involved in the group work after only a short trial period, and that CSTT not only increases achievement but reduces inappropriate behavior. Other benefits were reported to be improved grades, attendance, and attitudes toward school.

VI. SOURCES OF ADDITIONAL INFORMATION

Materials are available with or without training. Additional information about the Classwide Student Tutoring Teams program, including training in its implementation and the names of referral site that are currently implementing the program and are willing to share their experiences with CSTT, is available from:

Dr. Larry Maheady
Department of Education
State University of New York - College at Fredonia
Fredonia, New York 14063
(716) 673-3440

The following persons are CSTT Trainers and Consultants:

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ADAPTIVE LEARNING ENVIRONMENTS MODEL (ALEM)

Developed by Margaret C. Wang

General Description: The Adaptive Learning Environments Model (ALEM) is a comprehensive educational program for meeting the diverse social and academic needs of individual students of high, average, and low levels of academic achievement. It strives to create school learning environments for each student to acquire basic academic skills while increasing his or her ability to learn and to cope with the social and physical demands of the classroom. The ALEM recognizes each student as being unique. Its major premise is that students learn in different ways and at different rates, and they require varying amounts of instructional and related service support for mastery. ALEM's design is based on the theory and practice of adaptive education and a support structure to facilitate its implementation. The ALEM features (1) individualized progress plans, (2) a diagnostic-prescriptive monitoring system, (3) a student self-schedule system that helps students take on increasing responsibility for their own behavior and learning progress, and (4) support system that includes an adaptive program delivery system, a data-based staff development sequence, features that promote flexibility in school and classroom organizational patterns, and a systematic program for active family involvement.

Target Population: The ALEM has been implemented in grades K-12 in schools that are geographically and ethnoculturally distinct. It has been used as a general education program, a mainstreaming program for students with exceptionalities (including mental retardation, social and emotional disorders, learning disabilities, and giftedness), and a special education program for self-contained classes for students with moderate disabilities.

Implementation Considerations: Implementation is site and classroom specific, and teachers and administrators must commit time to planning and preparing for implementation. The district's core training team needs 3-5 days of pre-implementation training. Ongoing planning is necessary in the preparation of individualized learning plans that include basic skills learning and challenging exploratory learning activities. Interactive teaching is required. Students are expected to take on increased responsibility for their behavior and learning, and their progress is monitored on an ongoing basis.

Program Effectiveness: Since the development and school implementation of ALEM has evolved over the last 20 years, a number of research studies have provided evidence to support the program's salient design features and classroom processes, implementability, impact on student achievement, and efficacy in mainstreamed settings.

Costs: Staff training is provided either at Temple University or at the implementer's home site. Program implementation training can be obtained at Temple University by attending one of the periodically scheduled full-week workshops (3-4 workshops are generally scheduled each year). A fee is charged for the implementation training and other technical assistance at the school site. This fee varies depending upon the number of participating schools and classes. (In 1990 the cost of on-site training and technical assistance throughout the year of program implementation for two schools, with 10 classrooms each, was $18,500 plus travel and per diem for one or two trainers). ALEM materials are generally available at little or no cost to participants.

ADAPTIVE LEARNING ENVIRONMENTS MODEL (ALEM)

Developed by Margaret C. Wang

I. INTRODUCTION

The Adaptive Learning Environments Model (ALEM) is a comprehensive educational program for meeting the diverse social and academic needs of individual students of high, average, and low levels of academic achievement. The ALEM recognizes each student as being unique, and views individual differences as the norm rather than the exception.

The ALEM was developed in the late 1960's at the Learning Research and Development Center of the University of Pittsburgh (Wang, 1980). It combines prescriptive or direct instruction that has been shown to be effective in ensuring mastery of basic academic skills (Bloom, 1976; Glaser, 1977; Rosenshine, 1979) with aspects of informal or open education that are considered to be conducive to generating attitudes and processes of inquiry, self-management, responsibility for learning, and social cooperation (Johnson, Maruyama, Johnson, Nelson, & Skon, 1981; Marshall, 1981; Peterson, 1979; Wang, 1983, Wang & Stiles,1976).

As the product of over two decades of development and field testing, the ALEM provides an alternative intervention for schools striving to accommodate students of varying abilities, experiences, and socioeconomic backgrounds in general education classes, core compensatory education programs, and mainstreaming programs. Since the mid-1970's, the ALEM has been implemented in elementary, middle, and high schools that are geographically and ethnoculturally distinct, and it has been used as a general education program, a mainstreaming program for students with exceptionalities (including mental retardation, social and emotional disorders, learning disabilities, and giftedness), and a special education program for self-contained classes for students with moderate disabilities.

A. Purpose and Goals of ALEM

The ALEM strives to create school learning environments in which each student can acquire basic academic skills while becoming increasingly more confident in his or her ability to learn and to cope with the social and physical demands of the classroom. Its main goals are that each student will:

- Acquire basic academic skills.
- Interact appropriately with peers and develop social competence and self-esteem.
- Take responsibility for his/her own learning and behavior by participating in the planning and management of his/her educational tasks.

All students are expected to achieve these goals, although there may be differences between individual students in the rates of progress toward their attainment.

B. Contribution to Mainstreaming

The ALEM was developed as a general classroom model, but teachers began using it with special education students in the mid-1970's. Because the model provides an educational environment that adapts to individual student differences, it has several features that distinguish its implementation as a mainstreaming program. These features include:

- A comprehensive individualized instructional system that adapts instruction to the needs of each student.
- A structural support and management system that enables teachers of mainstreamed students to handle a range of abilities in different activities.
- A built-in support system to facilitate the implementation of the instructional program through the involvement of school administrative and instructional support personnel, health professionals, and families.
- The use of a "full-time" rather than a "part-time" approach to providing for the "special education" needs of regular and exceptional students.
- A focus on helping students develop self-esteem, social skills, and responsibility for their own learning--characteristics that allow teachers to devote more time to teaching, as well as making mainstreaming easier on teachers and learners alike.

An important premise related to using the ALEM for mainstreaming is that when special education is made available by general education teachers and specialized support staff to students with and without disabilities in the same setting, students are less likely to develop perceptions of themselves as exceptions or failures. General education students,

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special education students with mild-to-moderate disabilities, and academically gifted students can receive appropriate instruction without experiencing the negative effects of special labeling or segregation.

C. Development and Foundation

The ALEM was initially developed in the late 1960's by Dr. Margaret C. Wang and her colleagues at the Learning Research and Development Center at the University of Pittsburgh as an early learning program for preschool and early elementary grades. The development of the ALEM was highly influenced by Dr. Wang's early teaching experience. Her first teaching assignment was a second grade class in an inner-city elementary school. She had students ranging in age from 7 to 14 in her second grade class. To meet the diverse needs of the students in her class, Dr. Wang began to assemble individualized learning plans and work packets for her students. Thus, development of the ALEM was based on the practical perspective of a general classroom teacher who was faced with the challenge of making instructional accommodations to effectively meet the diverse needs of individual students. A major premise of its design is that students learn in different ways, and at different rates, and that adapting instruction to the individual differences of students is a feasible and effective alternative for maximizing learning (Wang & Vaughan, 1987a).

A second premise of the design of the ALEM is that schools are outgrowths of their immediate surrounding communities and are the primary agents charged with the responsibility for improving the life chances of our nation's children and youth. Education is seen as taking place in the context of changing social values, technical and economic developments, and other major forces in a complex social system that expects schools to deliver equitable and excellent education for all students. Schools are viewed as social systems that must respond effectively to individual differences, while ensuring the achievement of a wide range of student outcomes.

A third premise is that the teaching of basic skills need not be sacrificed in order to foster students' involvement in making curricular choices in planning and evaluating their own learning. These outcomes are equally important and can be achieved through systematic programming and close monitoring of program implementation. Under the

ALEM, school environments are created to maximize each student's opportunities to master basic academic and social skills (Wang, Catalano & Gromoll, 1983).

D. Key Principles Upon Which the ALEM is Based

The ALEM was designed on the basis of three key principles: (1) every student has the right to schooling success; (2) student diversity should be accommodated in schools; and (3) school, home, and community stakeholders have a shared responsibility to ensure the schooling success of every student, including, and especially, those requiring greater-than-usual instructional and related service support.

II. THE ALEM'S DESCRIPTION

The ALEM has two primary components: (a) adaptive instruction, and (b) a support structure for the implementation of adaptive instruction.

A. Adaptive Instruction Component

The adaptive instruction component features: (1) individualized progress plans tailored to each student; (2) a diagnostic-prescriptive monitoring system that ensures that each student is assigned appropriate educational tasks; and (3) a self-schedule system whereby students are taught to take responsibility for scheduling their own work.

1. Individualized Progress Plans

The ALEM requires teachers to develop individualized progress plans that tailor each student's educational experience to his or her particular learning characteristics and needs. These individualized progress plans prescribe appropriate amounts and types of activities/tasks for each student, and support students' learning through individualized and group instruction.

The learning tasks included in the individualized progress plans are generally organized around two complementary curriculum components. The first is a highly structured prescriptive learning component that consists of highly structured tasks which foster basic skills mastery in academic subject areas (e.g., reading, mathematics, science, social studies, and spelling). The second is an open-ended exploratory learning component that encourages students' social and personal development through the planning and management of their own learning while also providing basic skills enrichment opportunities.

a. Prescriptive Learning

The basic skills curricula developed by individual schools or school districts, as well as commercially published materials (e.g., basal texts) currently used in classrooms, constitute the core of the prescriptive learning component. Examples of learning tasks in this component are completing a written workbook assignment in a particular subject area, participating in a small-group, teacher-guided science laboratory activity, and engaging in a one-to-one tutoring lesson with a teacher.

Within the prescriptive component, curricula resources are analyzed and the curriculum is segmented into curricular areas (e.g., reading and math). Learning activities and tasks are matched to each curricular area. As lesson objectives, learning activities, and tests are identified, they are recorded on individual student prescription sheets. Each student has a prescription sheet for each curricular area (e.g., math and reading) that has been individualized to meet his/her learning needs. These sheets are designed to serve as a preprinted information source about the curriculum and related learning options. Coded at the top of the sheet is the student's name and grade, the title and level of the basal series or textbook being used, and the chapter being studied. The rest of the sheet is divided into rows and columns. Each row corresponds to one lesson, with the specific learning activities associated with that lesson recorded as column entries.

b. Exploratory Learning

The exploratory learning component of the ALEM serves to provide alternative means for accommodating students' unique abilities, learning styles, and interests through a learning center approach. Exploratory learning tasks are designed specifically to foster students' social and personal development, with a focus on enhancing their ability to plan and manage their own learning. These tasks also provide opportunities for basic skills enrichment. Examples of exploratory learning tasks are writing a script for a class play, creating a poster, and playing a game of chess.

The availability of exploratory learning centers within the classroom gives students opportunities to experiment, to become more aware of their own interests and abilities, and to learn to plan, monitor, and evaluate their own work. In addition, the needs of each student can best be met in a classroom where activities vary in level of difficulty and modality. A single classroom may have several exploratory centers. For example, one classroom that was observed at an implementation site had seven centers: math, science, reading, discovery, art, library, and listening. Each center typically has at least two or three activities that vary in content, level of difficulty, and format.

2. Diagnostic-Prescriptive Monitoring System

The diagnostic-prescriptive monitoring system enables teachers to: (a) develop individualized progress plans that are matched to students' learning strengths and needs, and (b) adapt a variety of instructional methods and learning experiences to the learning characteristics and needs of individual students. Under this system, teachers use criterion-referenced assessments (e.g., curriculum-based assessments with teacher-developed unit tests) to place each student in the curriculum, determine pre-instructional skill level, determine post-instructional skill level, and determine readiness for the next level of skill instruction. The system calls for ongoing monitoring of each student's progress through record-keeping procedures that incorporate paper-and-pencil or microcomputer formats to maintain up-to-date information on student learning.

3. Self-Schedule System

The self-schedule system (Wang, 1976) is designed to foster students' sense of responsibility and ability to become increasingly self-instructive in managing their own learning. Because the cognitive and social demands of assuming self-responsibility for school learning vary in complexity and requisite abilities, students are guided through a progression of relatively simple tasks to more complex ones. As with the development of any skill, not all students move through the hierarchy of the self-schedule system at the same rate. Therefore, instruction in self-management skills is adaptive to individual differences.

A system for record keeping of teacher-assigned and self-selected activities is used to assist the teacher in monitoring the students' work. This system includes the use of a self-scheduling sheet and a self-scheduling board. The self-scheduling sheet is a record form on which the teacher and the student record planned tasks, and on which the teacher records task completion. The self-scheduling board, which is usually posted on the classroom wall or bulletin board, is used to regulate the flow of students in and out of exploratory learning centers and special groups for reading, math, or other subject areas.

B. Support Structure

The implementation of adaptive instruction is supported by: (1) an adaptive program delivery system; (2) a training sequence known as the data-based staff development program; (3) a set of school and classroom organizational supports; and (4) opportunities for parents to become actively involved in their children's educational plans and programs.

1. The Adaptive Program Delivery System

To be successful, the implementation of an innovative educational program must both complement and supplement the contextual characteristics of each particular school. The adaptive program delivery system enables school personnel to conduct a needs assessment and make systematic implementation adjustments to adapt to their school's improvement goals and develop an appropriate program delivery system. This system includes Needs Assessment Forms, a sample schedule for the needs assessment, a checklist of implementation planning tasks, and forms to be used in the development of an implementation plan (Wang & Vaughan, 1987b).

2. The Data-Based Staff Development Program

Pre-implementation and ongoing support for the introduction and maintenance of the ALEM is provided through the data-based staff development program (Wang & Gennari, 1983). This training sequence for school personnel has three levels. The first, basic training, provides an overview of the ALEM and a working knowledge of the program's implementation requirements. The second level, individualized training, is keyed to particular functions of each staff role. The third level, in-service training, consists of an interactive process of program assessment, feedback, planning, and staff development.

As part of this process, data on the degree of implementation of critical ALEM design features are routinely gathered. These data are used to monitor the degree of the ALEM's implementation and identify individual and school-wide staff development needs. They also serve as the basis for designing training activities.

3. School and Classroom Organizational Supports

Adapting instruction to the needs of individual students requires flexibility in school and classroom organizational patterns. At the school level, the ALEM encourages staffing patterns that promote effective program implementation. At the classroom level, the ALEM encourages the use of multi-age grouping and instructional teaming as organizational patterns that maximize the implementation of adaptive instruction. Multi-age grouping provides the flexibility required to accommodate the differences of individual students, particularly those who make unusually slow or fast progress, without the social consequences of repeating or skipping a grade. It also offers opportunities for spontaneous and planned peer modeling and tutoring, which enable teachers to spend more time with students who require greater amounts of teacher assistance. Instructional teaming allows increased use of various grouping methods and encourages teachers to apply their own interests and talents to the provision of alternative learning experiences.

4. Family Involvement

Learning occurs in the home as well as in the school, and the ALEM is an excellent vehicle for involving parents in their childrens' educational programs. Activities are designed to induce family members to support their children's learning in concrete ways and to ensure that families are knowledgeable about the school curriculum and their children's learning plans and progress within the curriculum. For example, schools are encouraged to provide awareness training for parents to inform them of ways that they can become involved in the ALEM.

C. Critical Dimensions of ALEM

In summary, the ALEM has 12 critical dimensions or critical design features that encompass its primary components. To fully implement the ALEM, all of these dimensions must be implemented to a high degree (Wang, Catalano, & Gromoll, 1983). Three of these dimensions (1, 2, and 3 below) define the resources and classroom rules and procedures required to create the conditions under which program activities can be effectively implemented; the other nine define the roles and behaviors required of instructional staff and students to effectively utilize the program's resources in carrying out their teaching and learning tasks.

1. Arranging Space and Facilities. The physical space and facilities within the classroom are designed to foster and permit students' independence and responsibility for managing their learning behavior. Furniture and equipment are arranged to facilitate easy movement between areas; material storage and display areas are accessible to students; learning materials are systematically organized to permit independent selection and replacement by students; and there is an explicit system for controlling the number of students within, and the movement between, activity areas.

2. Creating and Maintaining Instructional Materials. Instructional materials are created and maintained for each objective of the learning sequences for the various curricula included in the program. A variety of instructional materials in both prescriptive and exploratory activities are available to allow student choice. Included are materials for use by students working alone, in small groups, and/or with the teacher. Teacher-constructed instructional materials are accompanied by a list of supplies needed to carry out each task and scripts of directions, statements, and questions that are consistent with curricular objectives and understandable to students.

3. Establishing and Communicating Rules and Procedures. Rules and procedures are made explicit to students to permit independent management of their learning environment and activities. Rules and procedures are clearly defined for the use and maintenance of instructional materials as well as the scheduling of activities, work completion, and independent movement about the room.

4. Managing Aides. Teachers meet with aides (paraprofessionals, classroom volunteers) regularly to make plans, specify assignments, and discuss the performance of individual students and specific concerns about student behaviors and achievement.

5. Record Keeping. All classroom records are updated daily. Records include student progress wall charts for each curricular area and a record of the daily prescriptive tasks completed by each student in each curricular area.

6. Diagnostic Testing. All students, including transfer students, are given placement tests when they enter a new unit of instruction or when teachers feel a reevaluation is necessary. Before starting work on a new curricular objective, each student is given a pretest; upon completion of

the objective, he or she is given a progress check or posttest.

7. **Prescribing**. Each student has his or her own prescription. Diagnostic test results and information from informal observations are used by teachers to prepare prescriptions in accordance with the sequence suggested by the curricular hierarchies. Included in the prescriptions is explicit information regarding assigned learning task(s) to be completed by the student. Prescriptions may include, for example, the name or the level and objective code number of the task, the number of workbook pages to be completed, and a list of group or individual activities from which the student may choose.

8. **Monitoring and Diagnosing**. Teachers evaluate student learning on an ongoing basis to identify learning difficulties before they become established problems. They utilize knowledge about the curricular level in which each student is working, as well as information obtained from parents and relevant instructional staff. Teachers check work in the students' presence and provide feedback. They determine the sources of difficulty for completion of tasks by individual students and alter prescriptions accordingly.

9. **Interactive Teaching**. Teachers continuously move about in all areas of the classroom, either responding to student requests or initiating contacts with students for a variety of instructional and management related purposes. Interactive teaching activities include providing on-the-spot instruction, changing prescriptions based on reassessment of student needs, and giving feedback and reinforcement to students as needed. Each student contact is relatively short in duration. When extended assistance or tutoring is required, sessions are scheduled for a later time. Upon completion of a student contact, teachers scan the room to determine the next teaching task which is chosen by recognizing a student who has requested assistance or by an on-the-spot analysis of student needs.

10. **Instructing**. Instruction in new tasks and review lessons is given in small groups, individually, and/or to the whole class. A variety of techniques that have been shown to be effective (e.g., questioning, explaining, cueing or prompting, structuring, restructuring, giving evaluative feedback, demonstrating, modeling) have been identified for use according to subject content, the nature of the learning task, and student learning needs.

11. **Motivating**. A range of motivational techniques are used to help students assume increased responsibility for their learning and behaviors. Teachers communicate their expectations for students' successes both verbally and nonverbally, and they encourage self-management skills, independence, and peer cooperation. Teachers show personal regard for each student and give praise when appropriate.

12. **Developing Student Self-Responsibility**. Teachers foster the development of students' skills in planning and managing their own learning behaviors. Students are taught to use their prescriptions and self-schedule forms in planning and carrying out both teacher-prescribed and student-selected learning tasks, to locate and return all materials and equipment needed in carrying out a task, to clean up their workplace, to focus on curricular-related learning tasks or constructive peer interactions while waiting for teacher assistance, to carry out assigned tasks with minimum teacher supervision and assistance, to make activity choices and scheduling decisions, and to monitor and evaluate their own work progress.

III. ALEM IMPLEMENTATION

A. The ALEM in Action

The ALEM classroom is active and diverse. A small reading group works with the teacher in the back of the classroom, while other students work independently, in pairs, or in small groups at exploratory learning centers set up around the room. These students are working on unique prescribed assignments or exploratory learning activities. They work from color-coded folders, one for reading and one for math, that contain the prescription sheets.

Students also have a third folder called the self-scheduling or "wait-time" folder. This folder, also color-coded, contains materials for the student to work on while waiting to receive teacher assistance, to have his or her math or reading checked, or to be signed out of an exploratory center. Students carry their wait-time folders with them at all times.

A parent volunteer (and/or a teaching aide) "travels" or walks through the classroom in an established pattern, assisting students who need help and checking their work. The special education teacher, who is shared among several ALEM classrooms, tutors one student at the teacher's desk.

A large board displaying the names of all the centers is posted on the classroom wall. Underneath the center names on the board are library pockets where students place name cards to indicate their place at that center. This self-scheduling board regulates the number of students and the movement between activity areas in the classroom. At any given time in an ALEM classroom, children may be found working on different assignments, in the same or in different subject areas, and at differing levels of difficulty.

Students working in centers or on prescribed activities do not raise their hands for assistance from teachers, aides, or volunteers. Instead, they use a "teacher-call" signal, which is located on their desks and in the centers, that allows them to signal for help from the teacher while continuing to work on their prescribed assignment or exploratory activity. The call signal in this class is two small sponges (e.g., one blue and one green) that the teacher glued together and placed in a small transparent plastic bag. Each student has this device on the top of his/her desk or work table--green side up if help is needed, blue side up otherwise (blue denotes calm clear sailing). A variety of inexpensive and homemade "teacher call" signals can be used. For example, a teacher in another classroom used as a call signal a colored sketch of a boy who is tied to the railroad tracks in front of an approaching train and is calling for "HELP." This picture is reproduced on a sheet of paper (the back of the picture is blank) and given to each student. If the student needs help, he/she simply displays the picture "face up" on his/her desk.

B. Participant Roles

1. Students

Students are expected to take on increased responsibility for their behavior and their learning. The self-schedule system requires students to make decisions about WHEN to do WHICH tasks (either prescribed by teachers or by the students). They learn to arrange their own work schedules, evaluate their own learning progress, and adjust their choices and schedules accordingly (e.g., to determine when exploratory center work and subject area work will be done). In addition to managing their learning activities, students learn to work within the constraints of the classroom by observing rules, following directions, managing materials, and requesting help from and giving assistance to teachers and peers (Wang, 1979).

2. Teachers

The general classroom teacher is the central figure in the provision of instruction in the ALEM classroom. In many ways, the teacher's role is similar to that performed by teachers in more traditional programs. For example, teachers in an ALEM classroom provide instruction for students in large groups, small groups, or individually, as needed.

Differences between the ALEM and traditional instructional programs are primarily based on the emphasis and degree of structural support for individualized instruction provided by the curriculum and the management system. For example, there is greater emphasis on diagnosing the learning needs of each student and prescribing a variety of learning tasks based on those needs. Experienced teachers will generally need a short training period to master any needed skills.

Since teachers at the middle and secondary school levels use whole class teaching methods, they may find it difficult to make the transition to interactive teaching. Elementary school teachers, on the other hand, make greater use of small group teaching techniques and typically adapt more quickly to interactive teaching.

In schools where the ALEM is used as a mainstreaming program, the roles of instructional personnel are redefined to achieve an interface between general and special education services. Special education teachers are required to work closely with general education teachers. They are responsible for collaborating with general education teachers to plan and deliver instruction for the students with special needs. The role of special education teachers includes consultation with general education teachers as well as provision of direct instructional services for students with special needs in regular classes. General education teachers in the ALEM classrooms function as the primary instructors for both the general education students and the students with special needs.

ALEM is time consuming to implement, and teachers need at least one more preparation period per week than they had in the traditional classroom. (In one visited district, all dimensions of ALEM are used only in reading and/or math because it is time consuming to develop the individual prescription sheets.) Teachers also need a part-time or full-time classroom assistant, depending upon the extent (number of subject areas) to which ALEM is being implemented. However, as students become increasingly proficient in managing and monitoring their own learning, teachers are freed from many routine management and instructional duties and are able to devote more time to instruction.

3. Administrators

Principals and other district and building administrators play a central role in implementing the ALEM. They provide administrative and staff development support to teachers, and they work with parents. They are particularly crucial to making organizational changes, redirecting school resources to support effective implementation, fostering collaborative relationships among school personnel, and providing continuous ongoing training support. They must set up and keep timelines for training, make site visits to operational sites, and build interest in the model.

As instructional leaders, principals must work actively with teachers to discuss the use of instructional strategies, involve themselves in classroom problems, participate in inservice activities, lead both formal and informal staff development sessions, observe classrooms and provide feedback to teachers, and work closely with teachers to identify instructional goals and means for their achievement.

4. Parents/Community

Although family involvement may take a variety of forms depending on the particular community and on the family involvement programs operating in the school, it should at least include awareness activities that inform parents of the design and goals of the ALEM and provide opportunities for parents to participate in ALEM. Such activities as designing and refining their children's educational plans, providing home instruction in consultation with teachers, and working as volunteers in the classroom with such responsibilities as checking work, answering questions, and monitoring students in center areas should be provided. As implementation of the program progresses, parents should receive frequent formal and informal reports about their children's progress. Parent (family) support is important for the success of the ALEM, as with any educational program, but ALEM can function without it.

C. Implementation Requirements

1. Planning

ALEM's implementation is site and classroom specific, and instructional and administrative staff need to commit time to planning and preparing for implementation in order to meet their own individual needs. Through the adaptive program delivery system, these personnel are encouraged, and provided the necessary assistance, to adjust ALEM's implementation to their own improvement goals.

The development of a school-specific program delivery system begins with a series of procedures to assess needs and plan implementation (Wang & Vaughan, 1987c). Based on a needs assessment of school features (e.g., student population characteristics, staffing patterns, curricula, operating practices, record-keeping procedures, and physical resources), a site-specific implementation plan for adopting the ALEM is developed. Such a plan includes an extensive awareness program for all relevant stakeholders (e.g., teachers, parents, and school boards) that eases the transition to the innovative educational approach and helps to ensure that the ALEM meets schooling needs and goals.

In particular, staff in schools implementing the ALEM must plan to: (a) inventory their instructional materials (e.g., texts, supplemental books or workbooks, center materials, educational games, and special equipment); (b) schedule the special education teacher's time for equal rotation in all the ALEM classrooms where his/her services will be shared; (c) reorganize the classroom to include exploratory center areas, storage for materials, private work areas, group work areas, areas for tutoring, etc.; and (d) prepare and write prescription sheets and self-scheduling sheets, and organize wait-time materials and center materials. In addition, teachers should plan time to talk with each other throughout the planning process to offer general suggestions, to plan a system for sharing or rotating materials and centers, and to plan for team-teaching or shared teaching situations.

ALEM can be introduced in the classroom in phases, beginning with the provision of awareness training during the year preceding its initial implementation. It is recommended that teachers become involved in using the model on a voluntary basis to better ensure that a "team" effort develops among the teachers using the model. Since some teachers may not be comfortable in applying all 12 of the model's dimensions at the onset, they can start by applying just a few. For example, teachers can start by setting up a few learning centers, giving students more responsibility for their learning, and letting students work in pairs or small groups. They can then progress to using prescriptive sheets and updating classroom records daily. However, the approach being used is not ALEM until all 12 dimensions are in place.

The use of the ALEM should be discussed with parents prior to implementation. It can be introduced to parents as a program to address diversity, in which children with diverse talents and instructional support needs may benefit.

It may be necessary in some states to receive permission from the State Department to use special education teachers differently, i.e., to allow special educators to work with both special and general education students within the general classroom.

2. Training

The data-based staff development program is the core of the "training-of-trainers" approach that is used to provide both the pre-implementation and ongoing training that is required to develop the competencies of local personnel for implementing the program in their own classrooms, schools, and districts. Local instructional leaders (e.g., principals, building-level education specialists, and district-level staff development specialists) who receive systematic training directly from the ALEM's developer and support staff can use the structure of the data-based staff development program to provide basic, individualized, and in-service training support for classroom teachers and other instructional staff.

Pre-implementation training generally takes place at the Temple University Center for Research in Human Development and Education (CRHDE), but it can be provided at the new implementers' school. The developer recommends that this training take place in Philadelphia where participants can observe ALEM in action in a number of the elementary, middle, and high schools implementing the program as a collaborative venture between CRHDE and the School District of Philadelphia. The core team of district staff who attend this training can train other staff in their district; however, it is recommended that CRHDE staff come to the implementation site to observe the training and provide technical assistance the first time it is done. Districts are required to pay only the travel expenses of CRHDE staff--their time is provided at no local expense.

The pre-implementation training generally lasts from three to five days and is conducted by Dr. Wang and her staff at CRHDE. Training is available at Temple University by attending one of the periodically scheduled "full-week" training workshops (three to four workshops are generally scheduled each year). There is a nominal charge cost for attending these sessions to defray some of the actual costs of sponsoring the workshops. Participants must pay for their own travel and per diem. In conjunction with these regularly scheduled workshops, ALEM materials are generally available at little or no cost to participants.

The pre-implementation training includes two parts. The first part, which usually occurs during the first and second day of training, is devoted to an explanation of the theory and research bases for the development of the ALEM, a discussion of the effectiveness data, and an overview of the program's components.

The second part of pre-implementation training is devoted to preparing the necessary materials for beginning the implementation of ALEM i.e., the design and preparation of prescription sheets, materials for exploratory learning centers, a self-scheduling board, record-keeping materials, "wait time" or self-scheduling materials, and the teacher-call signals. This aspect of the training is usually initiated the second or third day and continues throughout the pre-implementation training period and during the initial months of program implementation. The amount of preparation required varies according to the nature of the district's program, the resources, and the level of readiness of the school and its staff.

In addition, CRHDE staff will assist districts and schools in developing site-specific implementation plans. This process, which involves on-site visits by CRHDE staff, includes a comprehensive needs assessment, project planning and development, training and readiness activities, and program monitoring and evaluation. In 1990, the estimated cost for this technical assistance within a school district for two schools, each of which has a maximum of eight to ten classes participating in the training, is $18,500 plus travel and per diem for CRHDE staff. On-site training is generally conducted with groups of no more than 30 persons.

The amount of time that CHRDE staff spend on site providing other types of technical assistance, including follow-up training and assistance to teachers in the incremental implementation of the ALEM, depends on the specific needs of the staff in each district, which in turn depends on the content areas or types of curriculum to which the model is being applied. Complex applications require more on-site technical assistance than simple applications. The developer of ALEM believes that schools can be weaned from CRHDE staff support after the first year if the school has a good principal and there is a strong leader/supporter at the district level.

Since the workshops offered at Temple University are designed for both new and experienced ALEM implementers, they also serve an ongoing training function. ALEM training staff and participating teachers report that even experienced teachers find these workshops to be very important in developing networks for sharing and exchanging ideas, materials, and experiences. In addition, each participating school is provided with a set of implementation modules that describe all components of the model. These modules are not available to those who have not received ALEM training.

3. Staffing

Staff members, including paraprofessionals, special education teachers, general education teachers, and resource personnel, must work cooperatively to ensure efficient implementation of the ALEM. If implementation involves the return of special education students to general education classes, then special education personnel can be redeployed to provide services in the general classroom.

As stated previously, parents and other volunteers are encouraged to participate in ALEM classrooms, and may be trained to perform many of the same functions as paraprofessionals. Staff in at least two of the sites implementing the ALEM feel strongly that each classroom using the model needs a full-time aide. However, ALEM is typically implemented in most sites with a full-time aide being shared by two to four teachers.

It is beneficial to designate one teacher or other service provider to serve as the school's ALEM coordinator. Model implementers emphasize that a building-level coordinator is needed to facilitate the resource and consulting needs of ALEM staff. This person must have good knowledge of the resources that are available, and must be flexible and work well with the administration. The building coordinator also needs the support of CRHDE staff (by telephone if the school is distant from Temple University). Initially, the building coordinator might teach half time if the school starts out with just a few classrooms; however, a full-time coordinator will be needed as the program expands.

4. Facilities

No special or additional facilities are needed to implement ALEM.

5. Curriculum, Equipment, Materials, and Supplies

The ALEM can be used with any existing curriculum. No additional or special texts need to be purchased. Most commercially published curricular materials in use today can be easily modified for individualized progress planning and instruction, and teachers are trained to adapt, modify, and revamp existing materials and curriculum for use with the ALEM.

Since students in ALEM classrooms may work on different tasks and use different material depending on their skill levels, learning styles, and interests, a variety of supplemental instructional materials are necessary for implementing the ALEM. These materials must be efficiently stored and accessible to students, thus making the need for space and storage facilities a priority.

The special items needed to implement the ALEM are relatively easy and inexpensive to make, e.g., a self-scheduling board and teacher-call signals. If available, equipment such as computers, typewriters, film or slide projectors, and tape recorders may be used in learning centers.

6. Classroom Arrangement

Reorganization of the classroom is necessary to most efficiently implement the ALEM. The classroom is set up following a learning center approach. Each curriculum area has its own center, which includes materials for that subject matter and space for students working with these materials. Single desks are grouped together to promote group activities and peer interaction. The supplies and equipment for math, science, and social studies are set up in the same general area to encourage integration of these activities. A clear area in the center of the room provides space for students to work with materials from various subjects, either on the floor or on rugs, encouraging interaction among students as well as integration of their activities. Noisy centers, such as construction and arts and crafts, are separated from centers that require a quiet work area. Shelves are used for the storage of additional and supplementary materials for each center. Thus, space for center areas and the storage of supplemental materials must be provided. A small table for individual tutoring should be located in a quiet corner of the room.

Within the above guidelines, teachers are free to decide on their own classroom design based on room size, equipment and furniture available, materials, types of learning centers, and their own personal style for instruction. The teacher's desk is preferably located near the door, giving the teacher a home base that is easily accessible to students and visitors. For small group instruction, the teacher needs a table or similar area suitable for working with up to 8 or 10 students. Assignment of students to groups should be a flexible and ongoing process. Subgroups of students needing remedial instruction or those needing enrichment are organized by the teacher, as needed. No student should spend a disproportionately large amount of time in either individual or group settings.

7. School and District Organization

ALEM does not require changes to school or district organization.

IV. MONITORING IMPLEMENTATION OF ALEM

A. Students, Classroom, and Building-Level Outcomes

Assessment of student outcomes is built into the ALEM. Information about student progress is provided by ongoing, curriculum-based measures (e.g., the evaluation of skill sheets, work sheets and other work samples, unit or lesson post-tests, and teacher-constructed tests).

B. Overall Program Implementation

The Implementation Assessment Battery for Adaptive Instruction (Wang, Catalano, & Gromoll, 1983) is one of the major tools available for assessing overall program implementation and monitoring the degree of implementation. The Battery consists of a series of checklists, observation forms, and interview forms. It is routinely administered in ALEM classrooms to determine the presence or absence of the ALEM's 12 critical program dimensions. The items in the Implementation Assessment Battery for Adaptive Instruction are based on 108 performance indicators of these critical dimensions. The reliability and validity of the Battery have been established for a wide variety of school settings and for the identification of both teacher-specific and school-specific staff development needs (Strom & Wang, 1982; Wang & Gennari, 1983; Wang, Nojan, Strom, & Walberg, 1984; Wang & Walberg, 1983).

The Implementation Assessment Battery for Adaptive Instruction is also used as a self-assessment tool by ALEM teachers to determine areas where the implementation process is not complete, and as an indicator of degree of program implementation. The Battery is administered in the fall (e.g., November) and again in late spring (May or June). CRHDE staff score the Battery and use the results to provide on-site technical assistance and to develop the annual in-service programs. The results are discussed with individual teachers.

V. EVIDENCE OF ALEM EFFECTIVENESS

Research into the effectiveness and implementability of the ALEM has been conducted by the developer in collaboration with several of her colleagues. This research is summarized relative to four aspects of the ALEM: (a) salient design features and classroom processes, (b) implementability, (c) student achievement, and (d) the efficacy in mainstreaming settings.

A. Salient Design Features and Classroom Processes

Adaptive instruction is the major component of the ALEM, and a number of studies support both the feasibility and effectiveness of adaptive instruction programs. Waxman et al. (cited in Wang & Zollers, 1990) conducted a meta-analysis of 38 empirical studies of programs that used the adaptive instruction approach. These studies were reported in the literature between 1973 and 1982, and each was conducted in a general classroom in an elementary or secondary school. Effect sizes were calculated to estimate the effects of the adaptive instruction programs on cognitive, affective, and behavioral outcomes of student learning. (The data base involved a total sample of approximately 7,200 students and 309 effect sizes.) The authors report that the average score of students under the adaptive instruction programs was at the 67th percentile of the control group distribution. This finding of an overall positive effect of adaptive instruction seems constant when adjusted for grade, socioeconomic level, race, private or public school, and type of community.

In a 1986 study, Wang and Walberg (cited in Wang & Zollers, 1990) conducted a large-scale observational study of eight widely implemented instructional programs, each of which focuses on providing school learning experiences that are adaptive to individual student needs. The ALEM was one of these programs. The study was designed to examine how different combinations of features are integrated into working programs to produce the kinds of classroom processes and outcomes widely associated with effective instruction and learning. Observational data on seven categories of variables were gathered and analyzed for a total of 65 second, third, and fourth grade classrooms that were identified as exemplary implementations of these eight programs. The seven categories were program features, classroom processes, classroom climate, students' perceptions of self-responsibility, student achievement, teacher attitudes, and students' socioeconomic status. The authors report that:

1. The overall finding of the study was that programs and classrooms featuring the greatest use of adaptive instruction practices were also associated with academic and social outcomes that are linked to effective instructional and classroom management practices in the effective teaching and school effectiveness literature. No single feature, however, seemed to distinguish effective programs from less effective programs. Rather, it was the combination and coordination of several features in carefully implemented programs that appeared to produce a wide range of positive student outcomes.

2. Overall, programs and classrooms that were observed to feature the greatest use of strategies for individualizing instruction, as well as the clear delineation of task-specific directions, were associated with high levels of student responsibility.

3. On average, the programs that utilize predominantly adaptive instruction practices and strategies produced student achievement levels as great as, and often greater than, the achievement levels under programs that are more characteristically teacher-directed and group-paced. Significant differences were found across the eight programs in math achievement but not in reading achievement. (The ALEM was one of the three top programs in terms of math achievement.)

4. The ALEM classrooms were reported to be highest of the eight programs for: students working on independent tasks in group-parallel settings, the use of exploratory materials, student interactions with adults, teachers giving managerial instructions to students, one-to-one tutoring, teachers encouraging student self-responsibility, and teachers having contact with students in exploratory activities. The ALEM was lowest, however, in small group instruction and teacher interactions with students focusing on specific content (cited in Wang & Walberg, 1985).

5. Of the eight programs, the ALEM was reported to have the most indicators of adaptive instruction, including constructive student-to-student interactions and students working on independent tasks in group-parallel settings; encouragement of self-management, student choice, and exploration; and the teacher acting as manager and consultant rather than as disciplinarian or lecturer to the whole class or small groups (cited in Wang & Walberg, 1986).

In a 1980-81 school year study, Wang & Birch (1984a) compared (among other variables) the incidence of desirable classroom processes under ALEM and non-ALEM classroom conditions. The study included a total of 179 students--108 general and special education students in ALEM classes and 71 general and special education students in non-ALEM classes--in grades K to 3 in one school. The study investigators reported a higher percentage of incidence in ALEM classrooms of student-initiated teacher interactions, student-teacher instructional interactions, student-student instructional interactions, time on self-selected exploratory activities, and student time-on-task. For students in non-ALEM classrooms, a higher percentage of incidence was reported for time spent on teacher-prescribed activities and time spent in group settings.

B. Implementability

Several studies have been conducted to examine the implementability of the ALEM. Specifically, investigators have sought answers to the question: Can a high level of implementation be achieved and maintained for the ALEM? One study involved 42 teachers located in four school districts over a three-year period. Investigators reported the following findings (Vaughan, Wang, & Dytman, 1987):

1. Experienced ALEM teachers became increasingly proficient at implementing adaptive and program-specific, but not generic, features of the program and the improvement occurred only from the first to the second year.

2. Teachers tended to reestablish routines related to program-specific features of the program more slowly each year than routines related to other types of program features.

3. Generic and adaptive features were consistently implemented at a higher level than program-specific features.

A study conducted during the 1980-81 school year involved 138 teachers in kindergarten through third grade classrooms across 10 school districts in varying geographical locations (Wang & Birch, 1984b). This study was designed to answer two general questions: Can ALEM be made fully functional in a cross section of school? Is there a positive correlation between degree of implementation of the ALEM and desired classroom processes and student achievement in mathematics and reading?

Data were gathered to measure: (1) the nature and patterns of program implementation along 12 critical dimensions; (2) classroom processes (i.e., nature and patterns of interactions between teachers and students, nature and patterns of peer interactions, settings in which learning activities occurred, types of tasks or activities on which students worked, and manner in which time was spent by students); and (3) reading and math achievement.

Investigators reported that 96.4 percent of the teachers were able to implement the ALEM to an average (6 to 10 critical dimensions present) or high (11 to 12 critical dimensions present) degree. Students located in classes with a high degree of implementation spent less time on teacher-assigned tasks and more time on student-selected, exploratory tasks, and they exhibited more on-task behavior than those in average or low implementation classes. Finally, as teachers achieved increased levels of implementation, positive classroom processes improved.

C. Student Achievement

Investigation into the ALEM's impact on student achievement has been limited to the analysis of standardized achievement test results for reading and math. These investigations, which used raw standardized achievement test scores, compared student achievement over a one-year period. Comparisons included percentage increases in raw score gains for students in ALEM classrooms and differences between scores for ALEM students and national and estimated population norms (Wang & Birch, 1984a; Wang & Birch, 1984b). These investigators report that ALEM students with handicaps made greater gains in reading from fall to spring and nearly comparable gains in math than did students with handicaps in non-ALEM settings (no difference in achievement was noted for nonhandicapped students) (Wang & Birch, 1984b). Additionally, as program implementation improves, so does student achievement (Wang & Birch, 1984a).

In another study of ALEM's impact on student achievement in basic skills, results from statewide competency tests indicated that ALEM students in an elementary school in an economically depressed neighborhood outperformed other students in the state on measures of reading and math (Wang & Zollers, 1990). This finding was reported for both general and special education students in ALEM classes. Similar patterns of gains in basic skills for mainstreamed general and special education students in the ALEM program were reported in recent studies by Sobehart (in press) and Manning and Quandt (1990).

D. Efficacy of ALEM in Mainstreaming Settings

The efficacy of the ALEM as a program for integrating students with special needs in regular classrooms on a full-time basis has been documented in a number of studies, two of which are summarized here.

In a study conducted during 1980-81 in a district where the ALEM was implemented as a full-time mainstreaming program, Wang & Birch (cited in Wang & Vaughan, 1987a) compared the performance of students with mild disabilities randomly assigned to either ALEM or non-ALEM classes in kindergarten through third grade of one school. Students with disabilities assigned to the ALEM received all their instruction, including individualized reading and math, in the regular classrooms. Students with disabilities assigned to non-ALEM classes received reading and math instruction in a resource room for half the school day, then returned to the regular class for other subjects (e.g., science and social studies). Outcome measures included classroom processes, achievement on standardized tests of reading and math, and student-perceived competence.

The reading and math achievement of students with disabilities in the two settings did not differ significantly. However, significant differences were found in classroom processes and perceived competence. With respect to classroom processes, for example, ALEM students with disabilities initiated more interactions with their teachers than non-ALEM students with disabilities, and a greater percentage of these interactions was for instructional rather than management purposes. Moreover, these positive effects were noted not only during individualized instruction in reading and math but also during large group instruction in other subjects. On measures of perceived competence, ALEM students with disabilities tended to rate themselves higher in cognitive competence, social competence, and general self-esteem than non-ALEM students with disabilities. Unlike the non-ALEM students with disabilities who tended to rate themselves lower than their peers without disabilities, ALEM students with disabilities rated themselves at about the same level as their general education classmates. Thus, the full-time integration of students with disabilities in regular classrooms, which was made possible by the provision of individualized reading and math instruction, seemed to decrease the degree to which students with disabilities perceived themselves as different from other students.

The second ALEM mainstreaming study was conducted in 26 first through fourth grade classrooms in five schools of a large urban district (Wang, Peverly, & Randolph, 1984). Each class included about five students with disabilities who previously had attended special classes. Measures of program implementation and classroom processes were obtained in fall, winter, and spring. Measures of student achievement, student self-responsibility, and student and teacher attitudes were obtained in spring.

Program implementation was found to improve consistently across all five schools from the beginning to the end of the school year, with most teachers achieving a high degree of implementation of the ALEM by winter or spring. Improvements in implementation of the ALEM were accompanied by positive changes in classroom processes for general and special education students. For example, greater frequencies of teacher-student interactions for instructional, rather than management, purposes were observed in classrooms with a high degree of implementation (compared to classrooms with lower degrees of implementation), as were greater periods of time spent by students on task.

The ALEM was also found to have a positive impact on academic and attitudinal outcomes in both general and special education students. On standardized achievement tests in mathematics and reading, the students with special needs lagged somewhat behind the general education students. Yet, they averaged grade-equivalent gains of 1.04 in reading and 1.08 in mathematics. These are about equal to the expected gains based on national norms for general education students and approximately double the expected gains for comparable groups of students with disabilities. In addition, few differences were noted in the affective outcomes for both groups of students in the ALEM classroom. Both groups indicated willingness to accept responsibility for their classroom performance, as well as positive attitudes toward their classes.

The extent to which the students with special needs were successfully integrated into classroom life, instructionally and socially, was evidenced not only by improved classroom processes but also by the fact that, at the end of the school year, approximately 30 percent of the mainstreamed students were recommended by their teachers for decertification; the average decertification rate across the district for students with similar special education in self-contained special classes was 2.8 percent.

Teachers' perceptions of the ALEM's effects on students and themselves were generally positive. In their general assessment, 85 percent of the teachers in the ALEM classrooms felt that implementation of the program had been a professionally rewarding, challenging, and stimulating experience. A large majority also felt that the ALEM enabled them to get to know their students better. Although the teachers expressed some reservations about the program's record-keeping demands, a majority (67 percent) did not believe that the individualized approach to instruction placed too heavy a demand on their time and effort.

In terms of the program's effects on students, 85 percent of the teachers indicated that students in their classrooms seemed to feel better about themselves as a result of their experiences under the ALEM. A majority of the teachers also felt that the provision of learning options and individualized instruction resulted in improved academic performance and lessons matched appropriately to each student's academic level.

VI. SOURCES OF ADDITIONAL INFORMATION

For additional information about the ALEM, including training for the model and the names of referral sites that are currently implementing the model, contact:

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VERMONT CONSULTING TEACHER MODEL

Developed by McKenzie, Egner, Knight, Perelman, Schneider, & Garvin

General Description: The Vermont Consulting Teacher model is a special education service delivery option that has been operational in the majority of Vermont's school districts since the early 1970's. Through this model, a school-based consulting teacher collaborates with families, teachers, and other professionals to meet the needs of students with disabilities within the general education classroom. The model strives to maintain students under referral for special education in mainstream classrooms, transfer knowledge in special education to general education classroom teachers, minimize disruptions in the regular class programs, avoid stigma associated with categorical labels, provide opportunities for normal peer models and acceptance by peers, and facilitate generalization of practices and skills to other children with similar needs.

The model emphasizes both (1) the use of special educators as Consulting Teachers to general education teachers and (2) the integration of students with disabilities into general education settings. The model is flexible and, in addition to consultation, the Consulting Teachers may provide a variety of services in general classrooms and resource rooms; e.g., they may provide direct instruction of students with disabilities within general education classrooms and resource rooms, team teach with general education classroom teachers, and supervise paraprofessionals who provide direct instruction to students with disabilities in general education classrooms or resource rooms.

Target Population: Students with all types and levels of disabilities in grades K-12, or students who may be under referral for special education evaluation.

Implementation Considerations: The Consulting Teacher must be well trained to implement the model at the local level. In Vermont, these staff are trained through one of the state's two master's degree programs. The model relies heavily on special education paraprofessionals to support regular classroom teachers. Responsibility for the achievement of students with disabilities is shared between general and special education teachers. In an elementary school, the Consulting Teacher typically works with 13 to 20 teachers and 2 to 4 paraprofessionals, and has a caseload of 25 to 30 students. A high school with 50 to 60 special education students will typically have one Consulting Teacher, one resource room teacher, and 2 or 3 paraprofessionals.

Model Effectiveness: Research on the effectiveness of the Vermont model is quite limited, but evidence of its effectiveness is found in a few studies that focus specifically on that program and, through inference, in studies that focus on the effectiveness of consultation in special education in general. For example, a comparative study reported that sixth-grade students in a sample of three Vermont schools with consultation services had higher achievement levels than those in schools without such services, and that these initial gains were maintained as these students matriculated through grade 8.

Costs: Since training for the model in Vermont is supported by college training programs that are funded by the state, development of a comparable training program in other states would require a significant commitment of training resources. It has been estimated that the annual per-pupil cost for implementing the model is less than the per-pupil cost for a resource room. However, these costs can vary dramatically depending on the form of actual implementation of various service delivery modes.

VERMONT CONSULTING TEACHER MODEL

Developed by Hugh McKenzie, A. Egner, Martha (Fitzgerald) Knight,
P. Perelman, B. Schneider, & J. Garvin

I. INTRODUCTION

The Vermont Consulting Teacher model is a special education service delivery option that has been operational in the majority of Vermont's school districts since the early 1970's. It is a model of education through which a school-based consulting teacher collaborates with families, teachers, and other professionals to prevent or ameliorate the learning and behavioral problems of students with special needs (Fitzgerald, Allen, Peabody, Kay, & Hasazi, n.d.). The model emphasizes both the use of special educators as Consulting Teachers to general education teachers and the integration of students with all levels and types of disabilities into general education settings. Services may be provided either on a pull-out basis or within the general education classroom.

In addition to serving the role of an "expert" consultant, Consulting Teachers serve collaborative and receiving roles. The collaborative role is operationalized as team teaching, planning, and problem solving with special and general education staff. The receiving role involves listening to, and drawing from, the expertise of general education teachers who may know more about the student's situation and have better skills than the Consulting Teacher. In fulfilling these roles, Consulting Teachers provide a variety of services in grades Preschool-12. These services include direct instruction of students with disabilities within general education classrooms and resource rooms, team teaching with general education classroom teachers, and supervision of special education paraprofessionals who provide direct instruction to students with disabilities in general education classrooms or resource rooms. The model is very flexible in that the types of roles assumed and services provided depends on both the students' needs and the strengths and the characteristics of their special and general education teachers.

The Consulting Teacher model is used statewide in several states, among them Idaho, Massachusetts, and Vermont. Other states, such as Utah and Washington, are experimenting with the model in certain schools and districts (Huefner, 1988). In Vermont, the Consulting Teacher model is synonymous with the special education program.

A. Purpose and Goals of the Vermont Consulting Teacher Model

The Vermont Consulting Teacher model is designed to support local educators in the development and implementation of effective educational programs that exemplify best practices for students with all types and levels of disabilities. It is a special education service geared primarily to students and teachers in the mainstream with the intent of reducing the need for pullout special education services (Huefner, 1988). However, when used with students who have severe disabilities, the model requires adequate support services, e.g., one paraprofessional per each student who has a severe disability (Fitzgerald & Treadway, 1989).

The ultimate goal of the model is to enable the general education teacher to successfully instruct children with special needs. Although the original statement of goals for the Vermont model emphasized the role of the Consulting Teacher in providing services aimed at preventing special class placement, the model also serves to support special education students who are being served in mainstream settings. Its goals for individual students pertain to academic achievement as well as social skills and adjustment.

To achieve its purpose and goals, the Consulting Teacher model provides consultation and in-service education for general educators who teach students with disabilities at the elementary and secondary school levels (Cody & Hock, 1988). Its specific objectives are to:

- Maintain students under referral for special education in mainstream classrooms.
- Transfer knowledge in special education to general education classroom teachers.
- Reduce special education costs associated with excessive testing and transportation.
- Minimize disruption in the regular class program due to transportation, class changes, etc.
- Avoid stigma associated with categorical labels.
- Provide opportunities for normal peer models and acceptance by peers.
- Facilitate generalization of practices and skills to other children with similar needs.

B. Contribution to Mainstreaming

The Consulting Teacher model, as a matter of philosophy, strives to meet the needs of students with disabilities within the general education classroom. Proponents of the Consulting Teacher model believe that most students who have mild or moderate disabilities can learn in general education classroom settings if general education classroom teachers are provided with techniques and strategies for individualizing instruction and managing behavior. Consulting Teachers, however, are no longer the "integration zealots" that they were at the inception of the model. [In the early version of the model, the only acceptable placement was in the general education classroom with age mates (Fitzgerald & Treadway, 1989).] The current attitude is that students with disabilities must be served one way or the other. If consultation with the general education classroom teacher does not work (for whatever reason), then direct services will be provided to the child by a special educator or an instructional paraprofessional, and this may involve serving the child in a pull-out resource room setting.

It is thought that students with disabilities are more likely to be served in a general education classroom setting with the Consulting Teacher model than they would be with a pure resource room model. Though there is no empirical evidence to support this claim, the lack of self-contained classes for special education students in Vermont is evidence of the ability of the Consulting Teacher model to serve students in non-restrictive settings.

C. Development and Foundation

Prior to the enactment of PL 94-142, Vermont passed legislation guaranteeing an appropriate education to students with disabilities. At that time (in 1968), the State of Vermont had three strategies for delivering services to approximately 2,000 children with disabilities; i.e., these children were either served (1) in residential institutions, (2) in special classes contained in their regular school buildings or in buildings separate from regular schools, or (3) by resource teachers on a temporary, part-time basis from their classrooms (McKenzie, 1972). It was estimated that an additional 8,000 children were in need of special education. To meet these needs, particularly at the elementary school level, the Consulting Teacher model was initiated as a cooperative venture between the University of Vermont and the Vermont State Department of Education.

VERMONT CONSULTING TEACHER MODEL

According to McKenzie, the consulting teacher approach was favored over the extension of other kinds of existing delivery systems for the following reasons:

- Retention of children in general education classes and consequent avoidance of disruption to the schools.
- Avoidance of extensive busing of children to regional special classes for resource teacher classes. (Elementary schools in Vermont are typically quite small and widely separated geographically.)
- Resultant savings of financial resources.
- Avoidance of the stigma of labels and elimination of extensive standardized testing.
- Avoidance of discrimination and segregation.
- Provision of opportunities for children who do not have a disability to appreciate and understand children with disabilities, as well as for children with disabilities to have children who are not disabled as peer models.
- Resultant training of general education teachers in special education skills.

As initially conceptualized, the Consulting Teacher model was an attempt to bring special education expertise to general education by "teaching teachers" the principles of individualized instruction based on applied behavior analysis and management by objectives (the basic concept underlying the Individualized Education Plan). In this regard, the model was heavily influenced by the research literature in special education on prescriptive instruction and behavior modification. The developers of the model drew extensively upon the principles of behavior modification, including the concepts of reinforcement, scheduling, shaping, and errorless discrimination (McKenzie, Egner, Knight, Perelman, Schneider, & Garvin, 1970). The use of behavioral methods as the agent of change for learning was combined with prescriptive methods for individualizing instruction based on teaching/learning procedures that were targeted to achieve specific instructional objectives for individual students. These principles were embodied in the development of a model training program in 1970 to prepare special educators at the master's level as Consulting Teachers. The program has operated continuously at the University of Vermont since 1970 and has stimulated the development of similar programs in at least six other universities in other states (Idol-Maestas, 1983). The Vermont Consulting Teacher model is viewed as one of the first attempts to apply this technology in general education settings.

The original Vermont model was developed as an "expert" consulting model in which the Consulting Teacher did not provide direct services to students except as necessary to train the classroom teacher. Rather, the model provided indirect services to students who benefit from the accommodations and interventions carried out by the general education teacher. As such, this "pure" form of the model would be classified as a Primary Consultation model in which the consulting teacher would provide training and assistance to classroom teachers (Brown, Pryzwansky, & Schulte, 1987).

However, the Consulting Teacher model had only limited success when services were provided in this manner. As the model has evolved over the past 10-15 years, its focus and scope of services have been expanded and it has been modified to place a greater emphasis on collaboration and acknowledging the expertise of general education teachers. Along with this change in focus there has been increased emphasis on the direct services role of the Consulting Teacher, particularly at the secondary level where collaborative team teaching is now the norm. In particular, acknowledgement of the expertise of general education teachers was very instrumental in changing how the Consulting Teacher was perceived and, therefore, in reducing the resentment of the general education teachers (Fitzgerald & Treadway, 1989). Fitzgerald (1989) sees these changes as representing "the new sophistication" of Consulting Teachers who can assume both an expert and collaborative role as the situation and general school environment demands. The model became successful with this expansion.

As a result of these changes, the Consulting Teacher model has developed into what would be classified as a Resource Consulting model (Idol-Maestas, 1981) in which the special education teacher provides both direct services in a resource room as well as consultative services to teachers in mainstream settings. The Resource Consulting model allows the special educator to take advantage of the unique features of the resource room (e.g., small class size) while expanding special education to mainstream settings. According to Fitzgerald and Treadway (1989), there has been a national trend toward the Resource Consulting model and this trend has been evident in Vermont since 1980. Currently, only a few of Vermont's schools use the pure model.

The Vermont Department of Education, which was very supportive during the development of the model, continues to provide about one-half of the Consulting Teacher's salary (the local district provides the other half so Consulting Teachers serve both special and general education students) and the full salary for necessary paraprofessionals as an incentive to local school districts to adopt the model. The Department's Division of Special Education also discourages the use of special classes when a Consulting Teacher is available or can be acquired. Vermont does not, however, mandate the use of Consulting Teachers. The decision to use Consulting Teachers is left to local school districts (M. Kennedy, R. DiFerdinando, & T. Evarts, personal communication during site visit to South Burlington and Addison Northeast school districts, Vermont, May 17-19, 1989).

D. Key Principles Upon Which the Vermont Consulting Teacher Model is Based

The Vermont Consulting Teacher model was founded on the right of all children, regardless of the type of disability they might have, to receive a free and appropriate education in their local schools and the obligation of each school to develop the capacity to meet the diverse needs of its students in integrated community settings (Fitzgerald, et al., n.d.). It is based on the following key principles or beliefs (McKenzie, et al., 1970; Fitzgerald & Treadway, 1989):

- All children can learn, regardless of their disabilities, but there is great diversity in the levels of independence and responsibilities that can be attained. The children and their parents are the best judges of these levels; therefore, it is extremely important that children and parents have ultimate choices about programs and placement.

- There are a number of technologies (or strategies) to help children with disabilities learn, e.g., behavior modification, peer mediated instruction, cooperative learning, mastery learning, and direct instruction.

- General education teachers have the capacity to learn these technologies. Embedded within the Consulting Teacher model is the belief that general education teachers have the capacity to effectively teach students who have disabilities, if they have the specialized knowledge and technology for individualizing instruction and managing behavior that are available from special education.

- Consulting Teachers can assist general education teachers in developing the knowledge and skills they need to work effectively with students with disabilities. Consulting Teachers can be the agents who provide general education teachers with the specialized knowledge and technology for individualizing instruction and managing behavior.

II. CONSULTING TEACHER MODEL DESCRIPTION

The Consulting Teacher model has a number of aspects that can best be delineated by a description of the functions of the personnel involved. Any such description must be prefaced by noting that flexibility is itself a key aspect of the model. Since the model has been designed to meet the training needs that have been identified to fulfill the roles and expectations of Consulting Teachers in local school districts, the model will look different at different sites. In Vermont, Consulting Teachers must have a master's degree and at least two years of teaching experience (there is no preference between special and general teaching experience).

A. Role of a Consulting Teacher

According to Cody and Hock (1988), the Consulting Teacher must be competent in four major areas: (1) consulting and in-service training services for school personnel and parents, (2) assessment of students referred for special education services, (3) services to students with mild to moderate disabilities, and (4) program administration. Listed below are the specific functions included in each of the four competencies.

(1) Consultation and in-service training services for school personnel and parents.

- Providing assistance and information to general education classroom teachers which promote sound instructional practices for all students, thus eliminating unnecessary special education referrals and improving general instruction. These practices include sound instructional design and delivery; efficient instructional organization and management; and effective group and individual behavioral management.
- Providing assistance and information on best practices to general education class teachers who have students with mild and moderate disabilities in their regular classes. These practices include the instructional and organizational practices mentioned above, as well as individual accommodations and strategies which may be implemented to promote integration of students with disabilities in schools and community settings.

- Identifying local training needs related to the instruction of elementary, middle, and secondary level students with disabilities, coordinating plans for local workshops and/or coursework for general education classroom teachers, and providing for evaluation of such training efforts.

- Identifying and defining problems related to special education services within school systems, and developing, implementing, and evaluating systems change plans designed to bring about desired changes.

- Encouraging the development of parent support groups.

- Promoting a sense of shared responsibility for students with disabilities among parents, teachers, and the community by using collaborative problem-solving to establish goals, identify problems and alternative solutions, and implement plans of action for learners which incorporate best practices and shared responsibility for the students' education.

(2) Assessment of students referred for special education services (Consulting Teachers in Vermont typically reserve one day a week for conducting assessments).

- Selecting and administering appropriate evaluation instruments and procedures for determining special education eligibility of referred students.

- Analyzing evaluation results to make eligibility decisions, and interpreting these results to school personnel and parents.

- Selecting, administering, and analyzing education evaluation instruments and procedures for use in designing specific instructional sequences and strategies for students receiving special education services.

(3) Service to students with mild to moderate disabilities.

- Providing and disseminating written recommendations for the learner's program which have been agreed upon and developed by parents and teachers.

- Assisting in using these recommendations to develop, implement, evaluate and revise the learner's Individual Education Plan.

- Providing and/or planning for appropriate teaching interventions for students receiving special education services which arrange increased instructional time in deficit areas, combine assessment with instruction, teach for generalization to general education classes and teach self-monitoring and learning strategies.

- Evaluating the effectiveness of special education services for learners.
- Identifying and, if needed, assisting in coordinating related services (e.g., occupational and physical therapy) for the learner.
- Making follow-up consultation available to all learners previously served.

(4) Program Administration.

- Overseeing (e.g., providing training, monitoring, and evaluation) special education support staff such as paraprofessionals and volunteers.
- Ensuring adherence to local, state and federal legal requirements relating to special education.
- Advocating for needed special and general education resources.

Administrators and teachers interviewed during visits to Consulting Teacher schools stated that successful Consulting Teachers were those who: (1) had good "people skills" but who spent only part of their time consulting, and (2) were also willing and able to work directly with students, to team teach with general educators, and to supervise paraprofessionals who provide direct services. It is important that Consulting Teachers also work with teachers who in turn work with special needs students in other special programs, e.g., Chapter 1 and Migrant Education (Fitzgerald & Treadway, 1989). As stated by one superintendent, successful Consulting Teachers have the attitude with regard to general educators that "we will work together," whereas unsuccessful Consulting Teachers present the attitude that "you have to do it." A principal said that the characteristics of top notch Consulting Teachers are synonymous with those of good administrators; i.e., they have a mission and they are good communicators.

B. Model Flexibility

The following service delivery options are available in the Vermont Consulting Teacher model:

- The Consulting Teacher provides consultation, curriculum development, and planning assistance to the general education classroom teacher who provides all of the direct instruction to students with disabilities.

- A special education instructional paraprofessional provides direct instruction to the students with disabilities in the general education classroom based on plans provided by the Consulting Teacher.
- The Consulting Teacher and the general education classroom teacher work as a team, jointly providing instruction in general education classrooms to students who do and do not have disabilities.
- The students with disabilities are served in a resource room setting with instruction directly from the Consulting Teacher or from an instructional paraprofessional.

The selection of one or more of the above options is situational and the Consulting Teacher can adapt to the situation to use one or more of these options within a school or classroom. That is, the selection of a specific role is dependent on the needs of the student, the expertise of the general education classroom teacher, the expertise of the Consulting Teacher, the relationship between the Consulting Teacher and the general education classroom teacher, and the preferences of the school principal.

Even within the options outlined above, there is considerable variation in terms of the precise roles that specific teachers play. For example, when the Consulting Teacher plays a purely consultative role, this consultation may take the form of providing the general education classroom teacher with information about "best practices," or it may take the form of helping the general education teacher develop specific lessons. Similarly, when team teaching occurs, the Consulting Teacher or the general education teacher may take responsibility for the children with disabilities in the classroom, or the Consulting Teacher and the general education teacher may alternate instructing the whole class.

III. VERMONT CONSULTING TEACHER IMPLEMENTATION

A. The Vermont Consulting Teacher Model in Action

Because the model is flexible, the Consulting Teacher model will not look the same in every school. The nature of the services delivered by a Consulting Teacher is negotiated at the building level between the Consulting Teacher and the general education classroom teachers. The general education classroom teacher has considerable control over (1) whether a child with disabilities receives special services and (2) the precise nature of those services. Instruction may be delivered to children with disabilities in the regular classroom by the general education teacher, the Consulting Teacher, or a special education instructional paraprofessional; or instruction may be delivered in a resource room by the Consulting Teacher or an instructional paraprofessional.

Typically, the Consulting Teacher plays many different roles each day. For example, a Consulting Teacher might meet before school with (1) a child's general education teacher, Chapter 1 teacher, parent, and occupational therapist to discuss special problems and design educational plans accordingly, and (2) the paraprofessionals who are providing direct instruction. (The Consulting Teacher is usually the chief liaison with parents of students with disabilities.) During the remainder of the school day, she/he might teach a reading group in a general education classroom, team teach a math lesson with a general education teacher to a whole class, and work with a single student on spelling in the resource room. After school, the Consulting Teacher might meet with a general education classroom teacher to discuss a student's progress and make suggestions for more effective methods of teaching social studies to the student within the general education classroom. One day each week is usually reserved for conducting student assessments. In addition to those types of responsibilities, the Consulting Teacher has a variety of administrative duties related to the management of the special education program at the school level.

B. Participant Roles

1. Students

Since the Consulting Teacher model increases the likelihood that general education classroom settings will contain students who have mild, moderate, or severe disabilities, students must be sensitive to the special needs of their classmates.

2. Teachers

The roles and responsibilities of all teachers with regard to students with disabilities are affected by the Consulting Teacher model. (The role of the Consulting Teacher was presented in Section II.) The most significant effect is on the role of general education classroom teachers. These teachers make the program work and are usually the driving force for change in the school (Fitzgerald & Treadway, 1989). Consulting Teachers recognize this fact and acknowledge that they know less about the students and their special needs than, and often are not as skillful as, the general education classroom teachers. This acknowledgement is important in obtaining the support of general education classroom teachers.

With a Consulting Teacher model, general education classroom teachers have significant responsibility for students with disabilities and special needs. An important philosophical underpinning to the model is the idea that the general education classroom teachers maintain "ownership" of students with disabilities. In many cases, this includes an increased role, as compared to schools with conventional special education services, in the direct instruction of learners with disabilities. Frequently, this involves teaming with the Consulting Teacher in problem solving and in teaching at-risk students as well as with those who have disabilities. In other cases, an instructional paraprofessional or a Consulting Teacher provides all the direct instruction to students with disabilities, but this direct instruction is provided in the general education classroom rather than in a resource room. Even in situations where students with disabilities are served mainly in resource rooms, the Consulting Teacher model fosters the attitude that the general education classroom teacher has the major responsibility for the achievement of these students.

Since teachers at the junior and senior high school levels are more "departmentalized," Consulting Teachers usually do more team teaching at these levels than they do at the elementary school level. It is crucial, especially for students who are emotionally disturbed, that department chairpersons (including those of the departments of guidance and counseling) become agents or partners with the Consulting Teachers. Secondary schools using the model typically have one or more special education resource room teachers working with the Consulting Teacher.

3. Paraprofessionals

Consulting Teachers must have at least a part-time paraprofessional to assist in scheduling by relieving them of certain duties. A full-time paraprofessional is needed for each student who is severely disabled and served in the general education classroom. Though the specific role of each paraprofessional will vary depending upon the needs of the students and the specific roles assumed by the Consulting Teachers, paraprofessionals support the Consulting Teacher in the general education classroom by assisting in the provision of direct instruction, collecting and recording data, and making classroom observations. They may also provide direct instruction (under supervision by a professional) to students in pull-out settings.

4. Administrators

The success of the Consulting Teacher model is dependent on support from school administrators and on preparation of the general education faculty to use the Consulting Teacher effectively (Huefner, 1988). Administrators (especially principals) must provide, and play a major leadership role in, in-service training for special and general education staff. (There is real danger that, without careful preparation, general educators may see the Consulting Teacher as a tutor, an intruder, or at the least as an outside consultant rather than an inside collaborator. There is also a high risk that regular educators will resent a decrease in the time that so-called problem students are out of their classrooms.) Administrators must obtain the necessary resources and provide time (e.g., hire substitute teachers) for Consulting Teachers to hold regular (weekly) planning meetings with school staff and train paraprofessionals.

Supervision of Consulting Teachers by the principal and central office administrators is similar to supervision provided to other special educators. This means day-to-day or routine supervision by the principal and program supervision by central office staff. In Vermont, the central office supervisor typically is the Director of Special Education.

5. Parents/Community

Working with parents, the community, and other agencies (e.g., community mental retardation and mental health agencies) are important aspects of the Consulting Teacher model. It is especially important that the Consulting Teacher work with and for the families of students with special needs. Parents must be involved (both formally and informally) in developing their child's Individualized Education Plan, defining the level of independence and responsibility they want the child to have at that time, and sharing the child's life-long goals. Consulting Teachers talk frequently with parents about their children's work, either by telephone or in person. (Parents are provided continual access to the school and encouraged to stop by the school at any time, e.g., to have lunch with the

Consulting Teacher.) When working with parents and family, it is more important that the Consulting Teacher "listen" and "share" than "collaborate" (Fitzgerald & Treadway, 1989).

C. Implementation Requirements

1. Planning

In Vermont, the Consulting Teacher model is implemented, in effect, when a local district hires a trained Consulting Teacher. No extensive planning is required by the district because the model is supported by Vermont's Department of Education and because training programs are in place at two teacher training institutions within the state. Representatives from the training programs are available to explain the model to district administrators who are considering implementation. The work of implementing the model at the local school falls on the Consulting Teacher. Implementation at this level is typically a gradual process that is contingent on (a) the education of general education teachers by the Consulting Teacher, and (b) the development of positive working relationships between the Consulting Teacher and the general education teachers.

Ongoing problem solving and long-range planning are an integral part of the Consulting Teacher model at the building level. Regular weekly, grade level meetings that include the principal, assistant principal, and Consulting Teacher should be scheduled for these functions (Fitzgerald & Treadway, 1989).

Fitzgerald and Treadway (1989) state that the Consulting Teacher model will not work under the following conditions:

- If the model is imposed from the top down.
- If there is no support or perceived need for the model from general education teachers and principals.
- If staff do not accept the key principles upon which the model is based (see Section I.D).
- If tracking underlies the program. (The model will work with programs that use multi-age or heterogeneous grouping).
- If training systems are not in place to teach the competencies required of Consulting Teachers.

2. Training

Teachers in Vermont are trained through one of two master's degree programs that exist in the State. The newer of the programs is at St. Michael's College in Winooski Park. The original program is located in the College of Education and Social Services at the University of Vermont. The University offers a one-year and a two-year program. The two-year program provides more extensive training and is more appropriate for the trainee with minimal prior teaching experience. During the first year of the program, trainees complete course work that is typical of most graduate programs in special education. During the first year they also undertake school practice, which includes field site participation with Consulting Teachers in local schools. At the end of the first year, they receive a master's degree. In the second year, each trainee completes a supervised internship in a Vermont school district and is evaluated on achievement of minimum training competencies, including the ability to (Cody & Hock, 1988):

- Use a variety of consultation strategies that promote the implementation of services for students with disabilities.
- Develop and lead a workshop that focuses on an in-service teacher education need.
- Integrate and synthesize information in order to plan, program, and evaluate a system modification.
- Use a variety of consultation strategies resulting in the assessment and programming for students with disabilities.

In Vermont, there are no district-level preparation costs for implementation of the Consulting Teacher model. This is because, as noted under planning above, the model is supported by college training programs that are funded through Vermont's Department of Education, and implementation occurs when a trained Consulting Teacher is hired by a district.

Preparation for implementation may involve significant costs in other states. The precise costs would depend on the availability of existing personnel and resources for setting up a training program for consulting teachers and the extent to which a state or local district wished to be faithful to the Vermont model. A training program could be set up in conjunction with the teacher training program at a state university, or an independent consulting teacher training program could be established through a state education agency. Regardless of the manner in which the training program is set up, developing a training program comparable to Vermont's would require a significant commitment of training resources.

There is little information regarding the actual cost of implementing the consulting teacher model (Huefner, 1988); however, Paolucci-Whitcomb (cited in Huefner, 1988) estimated that the cost per pupil for serving students under the Consulting Teacher model is $200 less than the cost per pupil served in the resource room. This estimate is based on data collected in the early years of implementation of the model in Vermont, and Huefner (1988) emphasizes that the costs per state can vary dramatically depending on the form of actual implementation of various service delivery modes.

Ongoing training is an integral part of the Consulting Teacher model. The Vermont State Department of Education provides in-service training to Consulting Teachers and general education staff, as do the universities and the coordinators of special education in the state's 59 school districts. These coordinators, in addition to being administrators, must have a Consulting Teacher certificate; they are leaders of training and staff development (Fitzgerald & Treadway, 1989). While some of this training may be specifically relevant to the Consulting Teacher role, there is no special program for continued training. Examples of the technologies covered in in-service training throughout Vermont are direct instruction, mastery learning, cooperative learning, peer-mediated instruction, transitional services, employment strategies, teacher assistance teams, and consulting skills (interviewing, group skills, and establishing rapport (Fitzgerald & Treadway, 1989).

3. Staffing

Staffing for the Consulting Teacher model is similar to traditional special education programs, but with a smaller number of special education professionals and a larger number of special education paraprofessionals. In an elementary school in Vermont, a Consulting Teacher typically works with 13-20 teachers and 2 to 4 paraprofessionals, and has a caseload of 25-30 students (which would include some who have a severe disability). A high school will typically have one Consulting Teacher, one resource room special education teacher, and two or three paraprofessionals and serve 55-60 students. These estimated caseloads will vary with the types of students severed and the number of paraprofessionals involved, e.g., one paraprofessional is required for student who has a severe disability (Fitzgerald & Treadway, 1989). The Consulting Teacher model relies heavily on paraprofessionals to serve as a support to the classroom teacher by carrying out a variety of supervised activities set up by the Consulting Teacher and the classroom teacher for the benefit of targeted students. The roles and responsibilities of paraprofessionals within each classroom are clearly specified, and paraprofessionals are monitored closely by the classroom teacher.

The overall staffing cost of the Consulting Teacher model, considering both the Consulting Teachers and the paraprofessionals, is reported by practitioners to be roughly comparable to a traditional special education program.

4. Facilities

No special or additional facilities are needed to implement the Vermont Consulting Teacher model.

5. Curriculum Equipment, Materials, and Supplies

The Consulting Teacher model does not prescribe any particular changes in methods, materials, or the curriculum allotted for conventional special education services.

6. Classroom Arrangement

Changes in the classroom environment related to the Consulting Teacher model are limited to those changes that might occur because students with disabilities may spend more time in the general education classroom and because additional adults (Consulting Teachers or special education paraprofessionals) may be present in the general education classroom. No changes in the classroom environment are inherent to the Consulting Teacher model.

7. School and District Organization

The school or district must be willing to make a commitment to the integration of students with disabilities into general education classrooms. Though the Consulting Teacher model is sufficiently flexible to allow for less than a full commitment to this principle, integration is an important philosophical foundation.

IV. MONITORING IMPLEMENTATION OF VERMONT CONSULTING TEACHER

A. Students, Classroom, and Building-Level Outcomes

The initial design of the Consulting Teacher model linked evaluation to the achievement of student behavioral objectives. This emphasis on behavioral methodology was consistent with the "management by objectives" approach inherent in the IEP process. As the model has become more eclectic, student, classroom, and building-level evaluations have broadened to include measures of achievement of a variety of goals that are largely determined at the local school.

B. Overall Model Implementation

The Vermont Consulting Teacher model does not include a component for measuring model outcomes.

V. EVIDENCE OF VERMONT CONSULTING TEACHER EFFECTIVENESS

In spite of the rapid growth in the use of consultation in special education, the research base on efficacy is quite limited. It is difficult to evaluate the model across schools and school districts because of the variations used in its implementation. These variations are considered to be replications of the Consulting Teacher model if they are based on the model's assumptions and belief system. Some evidence to support the effectiveness of the Vermont Consulting Teacher model can be found in (a) studies that focus specifically on that model and (b) studies of the effectiveness of consultation in special education.

A. Studies that Focus on The Vermont Consulting Teacher Model

Two consultation effectiveness studies from the Vermont Consulting Teacher training program, neither of which were experimental in design, revealed positive outcomes from consultation interventions. One of these studies is a longitudinal state-wide study conducted by Hanley and Everitt (1977), who reported constant gains in achievement from students whose teachers had received consulting teacher service. No comparative evidence was presented in this study.

In the other study, Knight et al. (1981) studied students who were enrolled in six Vermont elementary schools continuously from 1975-79. Three of the schools were randomly selected from a group of 12 schools that received services through the Vermont Consulting Teacher model during the previous five years. The other three schools were randomly selected from a second group of 11 schools that did not receive consulting teacher services during the previous five years, but which adopted the Vermont model in 1979, the last year of the study. This study evaluated the effects of consulting teacher services on the reading and mathematics achievement (as measured by the Stanford Achievement Test) of students with mild disabilities. The researchers concluded that students who were in the sixth grade in the "service" schools during the first year of the study (the 1975-76 school year) had significantly greater achievement gains in reading and mathematics than students in "non-service" schools. In subsequent years, the service group of students received only indirect consulting teacher services; i.e., the programs given during the first year were monitored by the consulting teachers, and consultation was adjusted by the general education teachers. Students in the service schools maintained their initial gains in reading and mathematics achievement as they matriculated from grades 6 through grade 8, while the non-service schools gained at a much slower rate.

B. Studies that Focus on Special Education Consultation

West and Idol (1987) report in their review of the research on consultation in special education and related professions that only two of the small number of studies conducted in special education consultation are experimental studies. One of the experimental studies is the Miller and Sabatino study (1978) in which student performance and classroom interactions in classrooms utilizing consulting teachers was compared over a six-month period to those in classrooms using resource and general education teachers. The Teacher Consultant model involved 261 children with mild disabilities, 17 special education Teacher Consultants, and 153 general education teachers. The resource room model involved 209 children with mild disabilities, 16 resource teachers, and 122 general education teachers. The control group, which was taught by general education teachers without any special education support services, contained 67 children with mild disabilities. Student achievement in reading comprehension was measured by the Peabody Individual Achievement Test (PIAT) and word recognition and mathematics were measured by the Wide Range Achievement Test (WRAT). A modified Flander's device that was redesigned to describe eight teacher behaviors and six student behaviors was used to measure classroom interactions in the classrooms using the consulting teacher and resource room models.

Miller and Sabatino concluded that neither the teacher consultant nor the resource room models emerged as a clearly superior service delivery model with respect to academic achievement. Both represented a definite improvement of the absence of any special education support service (i.e., the control group). However, the authors argued that the consultation model was surprisingly effective, since academic gains were on par with the direct service approach. That is, general education teachers seemingly became as effective in delivering instruction within their classes to children with mild disabilities as resource teachers were in their intensive, "out of mainstream" classes. The authors also reported that general education teachers under both models changed significantly in such behaviors as having greater acceptance of feelings, increased praise and encouragement, more imparting of information, reduced criticism, and increased communication with students. Measures of teacher behavior improvement were more frequently observed in the teacher consultant model. Student behaviors did not change significantly under either of the two models.

In the other experimental study, Wixson (cited in Huefner, 1988) compared direct and indirect services delivered by resource teachers to learning/behavior disordered students. Using reintegration into general education classrooms as the measure of success, Wixson found more success with indirect service to general education teachers than direct service to the students. He noted, however, that students receiving indirect services were typically less disabled than those receiving direct service, so more success was not surprising.

According to West and Idol (1987), the only other available data on consultation in special education are two reports of successful versus unsuccessful general education class consultations and teacher satisfactions with, and use of, master's level resource/consulting teacher trainee services. Focusing on mainstreamed, behavior disordered students, Nelson and Stevens (cited in West & Idol, 1987) collected data in a two-year pilot study in an elementary school on the process and outcomes of consultation by resource consultants (university faculty and advanced graduate students). Consultation evaluation focused on two perspectives: the success or failure of consultation with respect to specific student case objectives, and the allocation of the resource consultants' time among various activities. Case outcome evaluation was based upon on-going data collection and classroom teachers' evaluation of consultation. Over the two-year period approximately 60% of the consultations were judged successful. Of a total of 29 consultation projects, only three were judged as failures. The authors delineated the specific types of students' behaviors that were involved in the project and the types that were successfully remediated.

Idol-Maestas (cited in West & Idol, 1987) described the results of 37 single-subject and group case studies using behavioral consultation. These case studies showed positive changes in school achievement and social behavior of students receiving indirect service from resource/consulting teachers (in training) serving classroom teachers. Although positive changes in students' performances and acceptability in the classrooms were evident, there were no in-depth descriptions of the communicative interactions occurring between the consulting and classroom teachers.

Within the same preparation program for resource/consulting teachers, Idol-Maestas and Jackson (cited in West & Idol, 1987) surveyed 29 classroom teachers who were receiving consultative assistance from these masters level trainees. Results indicated that: (1) all but one classroom teacher found the consultation beneficial; (2) 11 consultations resulted in not referring students for special services; (3) the number of classroom teacher-initiated consultations increased 26%; (4) 50% of the classroom teachers reported learning new skills (e.g., observation and recording student behavior data) from the resource/consulting teacher that they could apply in their classrooms, and (5) nearly two-thirds of the classroom teachers indicated that the resource/consulting teacher offered innovative ways of managing student behavior or selecting academic interventions. Nearly all of the classroom teachers reported that the consultant reminded them of practices of which they were aware but had not been using.

Recently, Huefner (1988) has provided a review of the literature regarding the effectiveness of the Consulting Teacher model. Huefner concluded that there is little empirical evidence to substantiate the assumption that the Consulting model is effective. The arguments for the model are intuitively attractive and rational, but well-designed research studies assessing the effectiveness of the few models already in existence are sparse. A major strength of the Vermont model in this regard is the extent to which it has been documented over time and validated through practice.

VI. SOURCES OF ADDITIONAL INFORMATION

Contact the following for additional information about the Vermont Consulting Teacher model, including training for the model and the names of sites that are currently implementing the model and are willing to share their experiences:

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TEACHER ASSISTANCE TEAM

Developed by Margaret Van Dusen Pysh and James Chalfant

General Description: The Teacher Assistance Team (TAT) is a school-based problem-solving system where teachers assist each other in generating intervention strategies for any student or problematic situation. TATs typically are composed of three or four elected faculty members who meet weekly to provide problem-solving assistance to anyone in the building. The core team is composed of general educators although special educators, principals, or parents may be members or participate when their perspective is requested. TATs are designed to support and assist teachers in five major areas of need:

(1) To resolve students' behavioral and academic problems be generating practical classroom intervention strategies and expanding staff expertise.
(2) To provide early preventive intervention for students who seem "at risk" for school failure.
(3) To assist pre-referral efforts by providing alternative classroom interventions before students are referred to special education for evaluation.
(4) To support general and special education teachers of students who are being mainstreamed in the general education classroom.
(5) To address any classroom or building concern such as handling an entire classroom, making curricular adjustments, responding to the needs of bilingual students, generating ideas for working with parents, solving general school-wide problems.

Target Population: TATs can be implemented in elementary, middle/junior high, and senior high schools.

Implementation Considerations: TATs do not replace special education. They provide support to teachers in individualizing instruction and improve the process of identification and special education placement of students with disabilities. TAT requires a significant commitment from administrators, particularly principals, and the school faculty for success. They must perceive and acknowledge a need for such a program. It is essential that administrators make time available for meeting regularly or acknowledge the extra time given by TAT members.

Program Effectiveness: Research on TATs has focused on the problems addressed by TATs, teacher satisfaction with the TAT process, effect of the TAT process on student outcomes, and the impact of the TAT process on special education referral and identification. Findings have generally been supportive of the TAT process as a means of supporting teachers as they address learning and behavioral problems their students are experiencing. Evidence has also been gathered to show that TAT does reduce the number of inappropriate referrals to special education.

Costs: Primary costs associated with TAT implementation are for initial orientation and training. Outside consultants (i.e., the developers) can provide TAT orientation in one-half day. Initial TAT training and follow-up can be covered in two days. The cost of orientation and training includes time and expenses of the trainer (fees include TAT materials for participants). Administrators will need to provide time for the TAT to meet which could entail costs if, for example, TAT members are given release time for meetings and their classes will need to be covered by substitutes.

TEACHER ASSISTANCE TEAM

Developed by Margaret Van Dusen Pysh and James Chalfant

I. INTRODUCTION

The Teacher Assistance Team (TAT) model is a school-based problem-solving system where teachers assist each other in generating intervention strategies for any student or problematic situation. TATs typically are composed of three or four elected faculty members who meet weekly to provide problem-solving assistance to anyone in the building. It is important that general educators feel a sense of team ownership by having majority membership. However, team membership also may include special services personnel, support staff, a principal, parent(s), or a student, depending upon the purpose of a team meeting. TATs deal with the individual and immediate classroom and building concerns of teachers. The teacher seeking assistance defines the problem, selects from alternative interventions developed jointly by the TAT and the teacher requesting assistance, and decides on a method to measure the effectiveness of the intervention. TAT is based on the belief that teachers have vast knowledge and talent that is seldom shared with others; TAT creates a forum for allowing professional educators to share problems and solve them.

A. Purpose and Goals of TAT

Teacher Assistance Teams are designed to support and assist teachers in five major areas of need. First, to resolve students' behavioral and academic problems by generating practical classroom intervention strategies and expanding staff expertise. Second, to provide early preventative intervention for students who seem "at-risk" for school failure. Third, to assist pre-referral efforts by providing alternative classroom interventions before students are referred to special education for evaluation. Fourth, to support general and special education teachers of students who are being mainstreamed in the general education classroom. Fifth, to address any classroom or building concern such as handling an entire classroom, making curricular adjustments, responding to the needs of bilingual students, generating ideas for working with parents, solving general school-wide problems (e.g., disciplinary measures, gang problems, attendance, or scheduling). These goals are accomplished by giving educators the opportunity to collaborate in a structured problem-solving process where they generate practical and effective adaptations or interventions for dealing with student and building problems.

It is important to note that TAT is **not** intended to replace special education. Rather, the intent is 1) to support teachers in individualizing instruction, 2) to improve the identification and placement process for students with disabilities, and 3) to make special education more cost-effective. The reduction in inappropriate referrals leads directly to a reduction in evaluation costs and reduces the number of students who are misclassified, which in turn allows special education to focus its resources on those students who clearly have a disability. Also, TAT is responsive to the need for better and more efficient coordination and communication between special and general education personnel at the building level by facilitating the special education identification and placement process, and structuring collaboration concerning disabled mainstreamed students. The primary goals of the TAT program are:

1. To help teachers conceptualize and understand individual differences.
2. To better individualize instruction to meet the needs of all students.
3. To provide immediate and relevant support to teachers concerning student, classroom, or building concerns.
4. To provide an efficient and effective pre-referral screening for special education services.
5. To support teachers in mainstreaming students with disabilities.
6. To achieve better coordinated special and general education services.

B. Contribution to Mainstreaming

The use of TATs provides an efficient and effective pre-referral intervention process and provides support to classroom and special education teachers for the integration of students with disabilities into general education classrooms. TAT is intended as a general education alternative and should not be confused with special education multidisciplinary teams that are responsible for the evaluation and placement decisions initially required by

PL 94-142 (The Education of All Handicapped Children Act), and currently required by IDEA (The Individuals With Disabilities Education Act). Special education multidisciplinary teams are **child-oriented** and serve a special education diagnostic purpose. TAT is **teacher-oriented** and serves as a collegial consultation unit on a day-to-day basis. TAT is intended to deal with a teacher's concerns or problems with any student in the classroom, and not solely with students being referred to special education. Teachers may request assistance in planning strategies for: an entire class, low achievers, gifted or bilingual students, curriculum issues, parent concerns or communication, and building level problems.

In the same vein, TAT should not be confused with special education consulting teacher programs, although such models also are collaborative and often involve problem-solving processes about similar problems. Most consulting teacher programs consist of one-on-one consultations between regular and special educators when outside specialized advice or evaluation is considered to be necessary.

C. Development and Foundation

The original concept of Teacher Assistance Teams was developed by Drs. James C. Chalfant and Margaret Van Dusen Pysh during the early 1970s in the State of Illinois. The establishment of teams was supported by the Superintendent, Kenneth Crowell, and Director of Pupil Personnel, Dr. Robert Moultrie, in District 108, Highland Park, Illinois. At that time, Dr. Pysh was Director of Programs for the Northern Suburban Special Education District, a cooperative of 22 districts including Highland Park, and Dr. Chalfant was a Professor at the University of Illinois. The model was further developed and evaluated in nine states (Alaska, Arizona, Illinois, Kentucky, Maine, Maryland, Nebraska, North Dakota and Pennsylvania) in schools which ranged from 20 to over 1000 students in urban, suburban, and rural settings. TAT is currently being implemented and evaluated in more than 40 states.

The early development of the TAT model was guided by beliefs and practices from five theoretical areas:

First, Roger's (1951) theory of nondirective counseling with its "person centered" orientation contributed to the critical attitudinal/affective core of TAT with the teacher as the central decision-maker. Carkhuff and Berenson's (1967), Rogers' (1951), and Maslow's (1960) work delineated the environmental and personal attributes necessary for teams to support personal growth and change: empathy; respect; positive regard; genuineness; and concreteness. Rogerian theory has been adapted by TAT to provide a technique for verbally and visually reflecting and conceptualizing with a teacher on his/her own perceived needs.

Second, TAT's basic design as a group support system was derived from group dynamic theory (Cartwright and Zander, 1962), and the use of group methods as a powerful and collaborative process for organizational change (Schein and Bennis, 1965 and Schein, 1969). These theories also provided TATs emphasis on the stages of group development and strategies for coping with the expected resistance to change.

Third, communication skills taught in the model were derived from multiple sources including specific research on interview techniques by Okun (1976) and Benjamin (1969). Nonverbal and verbal communication training components were based on the work of such researchers as Hall (1966), Birdwhistell (1970), Carkhuff and Berenson (1967), and Rogers (1951). These skills included an emphasis on listening, observing, attending and responding to verbal and nonverbal cues, reflecting, summarizing, negotiating and providing a non-judgmental, non-threatening environment.

Fourth, TAT was strongly influenced by Osborn's (1963) research on creative problem-solving in groups. Osborn's identification of successful techniques for "brainstorming" as well as his delineation of roadblocks to creation and follow-up to ideas is central to TAT's intervention creation and follow-up process.

Fifth, the behavioral approach of TAT in addressing specific learning and behavior problems within the school uses the applied behavioral counseling theory of researchers such as Krumboltz and Thoresen (1969). This area of research recommends a process of problem identification, creating specific behavioral objectives, conducting base-line and follow-up measures, dealing with the "here and now", and contracting whenever possible.

TAT incorporates these behavioral aspects in a systematic process, which specifically identifies and conceptualizes the problem, clarifies and delineates behavioral objectives and requires measurement and follow-up with a contract between the team and the teacher.

Sixth, the focus of the TAT model on the school context and climate for change and the necessity for building readiness activities was derived from theories on organizational development and planned change (Bennis, 1969; Bennis, Benne, & Chin, 1961, 1969; Lippitt, 1969; Sarason, 1971). Readiness and development activities included in team planning were: identifying a building's need and desire for a team; faculty orientation; election of team members; faculty ownership of the team process; overt administrative leadership and support; placing the team in the school context; and follow-up and networking to support planned change over time.

These six areas of theory and practice (person-centered/nondirective counseling; group dynamics; communications; creative problem solving; behavioral approach; school climate and the context for change) were used to build the foundation for TAT. As new theories, practices, and research emerge, promising approaches have been incorporated into the TAT model. Chief among these were: teacher beliefs (Ashton & Webb, 1986; Schön, 1983), instructional consultation/collaboration (Idol, Paolucci-Whitcomb & Nevin, 1986; Rosenfield, 1987), behavioral consultation (Bergan, 1977), effective schools and teacher empowerment literature (Maeroff, 1988; Rosenholtz, 1985a; Purkey & Smith, 1985).

D. Key Principles Upon Which TAT is Based

The practice of TAT is guided, and its success is influenced by the basic principles listed below.

1. **General education teachers have the knowledge and skills to help many students with learning and behavior problems.** However, teachers often need assistance in generating alternative solutions when their efforts to deal with a problem fail.

2. **Teachers can solve more problems working together than alone.** Teachers value the advice and support of their colleagues as a means of increasing their knowledge and skills. This principle assumes that teachers function in or can create a "safe" environment in which they have the support

of their building administrator and colleagues when they seek help.

3. **Teachers value immediate help with a problem and learn best by doing.** The best way to increase teacher's skills is by providing immediate practical help with specific problems in their classroom. Practical help not only means feasible suggestions, but also a minimum of paper work and relatively brief team meetings.

4. **General education should make every effort to resolve students' learning and behavior problems before referring them to special education and labeling them as having a disability.** TAT is a system for providing teachers with support which also serves as an effective pre-referral process.

5. **TAT members require special training.** It is assumed that most teachers have sufficient knowledge and skills to implement the suggestions and interventions that are developed in team meetings or can access more information through team members. However, team members do require specific training in: analyzing problems, drawing problem-interaction diagrams, interviewing teachers, conducting problem-solving meetings, brainstorming, measuring student progress, creating intervention plans, group dynamics, communication skills and creating a specific building level plan for operating a TAT team.

6. **Successful adoption is dependent upon the implementation of the ideas and principles of the model.** The most obvious limitations of the TAT program rest with the commitment of the faculty and principal within a building to the model.

II. TAT DESCRIPTION

The TAT program typically consists of three or four faculty members who are elected by their peers within a given building. The core team is composed of general educators although special educators, principals, or parents may be members or participate when their perspective is requested. This reinforces the basic function of the team to empower general educators. Teams are usually constituted to represent the various grade levels and departments within a particular building.

The TAT process begins when a teacher requests assistance on a problem by answering four questions. One team member draws a preliminary visual analysis of the problem, interviews the teacher, and may observe in the classroom. Then, the team and requesting teacher meet for a 30 minute problem-solving session. Jointly, they conceptualize the problem, identify goals, brainstorm alternative solutions, and plan a course of action including a follow-up plan for evaluating intervention effectiveness. The outcome as determined at the follow-up meeting could be that the problem is solved, that it requires further team support or a different intervention, or that the case should be referred for special education evaluation.

III. TAT IMPLEMENTATION

A. TAT in Action

A typical TAT meets once a week at a regularly scheduled time. Weekly meetings may be scheduled before or after school, or at some time during the school day if schedules permit. Meetings may take place in a classroom or a private conference room. As noted previously, the TAT is generally composed of three or four faculty members who have been elected by their peers. Teachers (or other staff members) usually refer themselves to the TAT to discuss concerns about a student. A principal, assistant principal, special educator or counselor may bring a problem or seek advice from TAT, or accompany a general educator if they share a problem. A broad range of issues may be brought to a TAT. These include issues that affect the entire school or an entire classroom, or narrow issues that relate to the individual concerns of one teacher. Most typically, however, the teacher requesting assistance/collaboration is a general classroom teacher and the problem relates to a specific student. That scenario is described below (Chalfant & Pysh, in press).

The TAT process begins when a teacher requests assistance by completing a brief TAT Request for Assistance/Collaboration form which asks four questions:

1. What would you like the student to do that he or she is not doing at the present time?
2. What have you already tried to help the student?
3. What are the student's strengths and weakness?
4. What relevant background or information about the student, family, context, or situation might be related to the problem?

The form is given to a TAT member or dropped in the TAT mailbox. Upon receiving the request, the TAT leader/coordinator (one of the team members) assigns the case to a team member who serves as case manager. The case manager creates a Problem

Interaction Diagram from the teacher's data, which provides a visual picture of the possible relationships between the problem areas and the context in which the problem is occurring (15-20 minute process). The Request and Diagram are shared with other team members through copies or mailbox routing so that each member has a chance to raise questions in writing on the Interview Log form (5-10 minute process). When all team members have reviewed the case (typically one week), the case manager takes the diagram, and the questions from all team members and interviews the teacher for clarification prior to the team meeting. The teacher also is asked to review the diagram. The teacher may agree that the team diagram provides an accurate representation of the problem or may ask that the diagram be added to or modified (10-20 minute process). The case manager may observe in the classroom depending upon the nature of the case and the teacher's comfort.

Following the interview and observation, the team and requesting teacher meet for the 30 minute problem solving meeting. The meeting itself has six steps:

Step 1. The purpose of the team meeting is reviewed and the teacher's responses to the diagram and interview questions are reviewed by the case manager. [Note: If the interview and diagram are not shared with the teacher prior to the meeting, that process becomes a part of Step 1.] The teacher and team reach consensus on their perception of the problem situation.

Step 2. The requesting teacher selects one problem area or deficit on which to focus for that session. A specific goal is selected by the teacher that relates to the problem situation and the team clarifies and records the goal in behavioral terms with parameters, e.g. to bring his materials (book, paper, pencil) to math class three times a week.

Step 3. All ideas generated during a 10 minute brainstorm session are recorded. Typically, from 8-32 possible interventions are generated.

Step 4. The requesting teacher selects which interventions to try and the team refines the interventions as desired by teacher request.

Step 5. The team and teacher complete a one-page Classroom Intervention Plan including the goal, the selected interventions in a sequenced, integrated plan and a measurement system to evaluate the effectiveness of the plan.

Step 6. A date is set for a follow-up meeting within two to six weeks to review the original intervention plan. In the interim, the case manager is responsible for contacting the teacher concerning any questions or concerns.

At the follow-up meeting, the requesting teacher and case manager report on the progress of the student and the team reviews and analyzes the measurement data. If the outcome is satisfactory to the teacher (e.g., fighting on the playground has been reduced or eliminated), the case is terminated or a different problem is chosen for additional focus. If the initial goal has not been achieved, the intervention plan may be refined, modified or altered. Or, the team and the requesting teacher may re-examine the initial conceptualization of the problem (as represented by the diagram) and select another goal. Sometimes the intervention serves as an assessment process and reveals another unsuspected underlying problem. If, at any point, the TAT or requesting teacher suspect the student has a disability, they must immediately process a referral requesting special education evaluation. The TAT team can continue to support the teacher with classroom suggestions during the special education referral process.

B. Participant Roles

1. Students

Students may serve as team members and participate in generating strategies to resolve their own problems, whenever the team believes the presence of the student would be helpful. Participation on a team can provide a sense of ownership of both the problem and the responsibility for its solution.

[6~ TAT has an indirect impact on students. An implicit assumption underlying TAT is that beneficial effects on student learning result from the adaptations and interventions that are implemented by the teacher. The enhancement of teachers' skills, confidence, and motivation resulting from success with students and support collaboration with peers also benefits other students in the classroom (Arhar, Johnston & Markle, 1989).

2. Teachers

The purpose of the TAT model suggests that the majority of standing team members be general education teachers. TAT has a significant impact on the role of all teachers and, specifically, in the way teachers interact to solve problems. This impact is described throughout this report. TAT can be viewed as a means for empowering teachers as decision-makers and instructional leaders in their buildings. The most important idea underlying the role change is the belief that teachers can work with other teachers to solve many classroom problems. TAT creates organizational and procedural changes in the school that are consistent with this belief. These changes foster collegial interactions and create a more professional working environment. Presumably, as teachers' knowledge and skills for dealing with learning and behavior problems increase, they assume greater ownership of such problems and are more motivated to deal with such problems directly (Rosenholtz, 1985a).

The role of special education teachers on TAT is usually that of a resource person who is invited to any meeting when their particular expertise is needed, or a student of theirs is being discussed. Although special education teachers may serve as standing team members, their number is usually limited to one per team. Their presence is limited to give the earliest intervention initiative to the general education teachers. However, this procedure does provide a structured forum and often improves beneficial collaboration between general and special education teachers (Chalfant, Bos, & Pysh, 1990).

TAT also has significant impact on the interaction and communication between general education teachers and special education teachers. Collaboration between TAT and special educators can be particularly effective in planning mainstreaming placement programs for students. It is not uncommon for special educators to recommend TAT and accompany general education teachers to the TAT meeting. The collaboration of special educators and TAT has been found to reduce referrals and reduce unnecessary time for inappropriate testing, which enables special educators to invest more time on truly disabled students who need their help (Chalfant, Bos, & Pysh, 1990).

Team arrangements reduce teachers' isolation and increase teachers' satisfaction and professional development (Arhar, et al, 1989). Improved teaching through professional dialogue, improved self-efficacy, more experimentation and a greater sense of professional pride also are associated with collegial collaborative settings (Rosenholtz, 1985b).

3. Special Services Personnel

Special services personnel typically serve as resource persons to TATs. However, at the middle or high school level, it is common for a guidance counselor to be a standing member of the team since they are often permanent on-site staff and have a building - wide perspective. Psychologists, social workers and counselors often find TAT a useful forum for discussing "at-risk" students with a pre-referral intervention focus. When appropriate, TATs can provide evaluation personnel with pre-referral information and data, which can accelerate the referral process. It is not uncommon for special services staff to utilize TAT for themselves or with a general education teacher. Often the more structured TAT format or the addition of other problem-solvers can be of assistance in dealing with a situation or student.

4. Administrators

At the school level, the TAT program necessitates the active and overt support of the principal, though the principal need not be a member of the team. Some principals serve on teams and report it as an effective method for joining faculty as instructional collaborators. Other principals feel their participation as a team member complicates the process by introducing an issue of authority. When operating successfully, TATs can reduce the workload of the principal or assistant principal by addressing behavior problems, classroom management or instructional problems that might otherwise be brought to these administrators.

In large districts with multiple teams, it is helpful, though not absolutely necessary, to have a part-time TAT coordinator, usually someone already involved in TAT or in staff development. This coordinator monitors the program, provides orientations for prospective schools and plans for training and other functions. This function provides guidance and support rather than supervision to TAT members.

More commonly, large districts or regions create a network process suggested by the developers, where TAT team leaders from various buildings meet regularly to share concerns and problem-solve between buildings.

5. Parents/Community

TATs including parents on teams report a rich additional source of creative problem-solving and a greater understanding of community resources/issues. Parents appreciate the early intervention and collaboration aspects of the model and being involved before the question of special education referral arises.

The primary use of TAT is not intended to directly impact parents or the community. However, when parents or community members become involved in TAT/school wide programs, TAT can have a significant parental and community impact. In addition, it is always good practice to keep parents informed of district programs, such as TAT, that have an impact on their children.

C. Implementation Requirements

1. Planning

The idea for initiating TAT can originate with almost anyone in the school. In a recent study, the idea for TAT most frequently originated with the building principal, superintendent, director of special education, special education personnel, or general education teachers in that order. Once someone initiated the idea, various strategies were used for making the decision to implement TAT. As expected, when implementation was chosen by faculty, team success was more likely (Pysh & Chalfant, 1989). One key to effective implementation seems to be faculty involvement in the decision to participate and faculty perception that TATs meet their needs (Chalfant, Bos & Pysh, 1990; Pysh, Jacobsen & Chalfant, in press).

TAT requires a significant commitment from administrators, particularly principals, and the school faculty for success. They must perceive and acknowledge a need for such a program. The first step in gaining support for the program from potential adopters is to conduct a general orientation session for administrators that presents the basic concepts, underlying assumptions, and goals for TAT. Trainers who are experienced in the program are available, through the program developers, to conduct orientation sessions. Other materials describing TAT in action are also available. It is important from the outset that administrators understand the concepts behind TAT and the requirements for successful implementation. Principals must agree to hold building-level teacher orientations and to allow TAT members to attend a minimum of two six-hour training workshops for initial and follow-up training. They also must agree to provide the necessary support for program operation once TAT is implemented in their building.

The second step in the planning phase is to hold building orientations to determine a faculty's interest in establishing teams in their building. This orientation can be accomplished in 30-45 minutes to an hour. If at least 40-50% of the faculty want to try TAT, and agree to have either the entire faculty or the TAT team participate in the training workshop, the planning phase proceeds to the training phase.

The third step in planning is the election of three or four faculty members by the building faculty to serve as initial team members, the majority being general education staff. Election of team members is designed to ensure the trust and confidence of the faculty who request assistance.

Ongoing planning is necessary in the periodic rotation of team members to form new teams, and in determining a mutually agreed upon team meeting time.

2. Training

Specific training of all staff in the nature, organization and functioning of TAT is essential to the success of teams in schools (Chalfant, Bos, & Pysh, 1990; Hayek, 1987; Gilmer, 1985; Schram & Semmel, 1984).

The initial training can be given to an entire faculty or just to the principal and four elected team members in a six hour workshop. Workshop participants receive training in all aspects of the TAT process. Training workshops are hands-on experience in which the participants come to the workshop with actual problems they have in their own classrooms. A maximum of 100 individuals can be trained in one session. The training is, in essence, a case study model of the TAT process itself and incorporates the components of effective inservice identified in research (Rosenholtz, 1985b).

Participants are divided into teams of three-to-six persons who sit at the same table. Initially, each participant fills out a request for assistance/collaboration. Requests are then exchanged between tables. Each group operates as a functioning team to gain group collaborative experience in the following aspects of the model: (a) accurately and succinctly describing student needs and classroom problems; (b) analyzing and conceptualizing student needs through a visualization diagramming process; (c) applying communication principles for interviewing teachers and functioning on teams; (d) conducting efficient and effective 30- minute problem-solving meetings in six steps; (e) selecting and writing realistic intervention goals; (f) brainstorming practical strategies for the teacher to use in the classroom; (g) writing a clear, concise, sequenced Intervention Plan; (h) developing procedures for measuring intervention effectiveness and providing follow-up support to the teacher; and (i) planning an orientation process which reviews the problem-solving process and the TAT concept for teachers in their schools.

Follow-up six hour workshops usually include only team members and typically occur four to six months after initial training. The content of follow-up workshops varies depending on the level of team development. Typically, they focus on reviewing and refining team procedures, teacher beliefs, further training on group dynamics, communication, intervention strategies and team institutionalization issues.

There are costs associated with orientation and training for the implementation of TAT. Once the TAT program is established in a district, orientation and training for new TAT schools within the district can be provided by local personnel. When a district first adopts TAT or when a school is the first in its district to adopt TAT, orientation and training must be provided by outside consultants. The model developers are available to provide both orientation and training. Orientation at a number of schools within a district typically requires one-half day of a consultant's time and initial training and follow-up require another two full days. The cost of training with outside trainers includes the time and expenses of the trainers. For all orientation and training, materials are available from the developers. A school or district interested in TAT may request from the developers an orientation packet that contains descriptive information about TAT and an overview of the TAT training sessions. The information in this packet can be reproduced and distributed to orientation participants. When a school/district commits to and schedules training, the developers will forward a training workshop packet to the training coordinator to reproduce for each training participant.

Training for TAT is an ongoing process because there is a constant turnover in membership of the TAT's. As new teachers become TAT members they must be trained. To meet this training need, a school district where many schools are using TAT needs to develop and provide their own comprehensive training at least annually.

3. Staffing

TAT requires no additional staff at the local school since TAT members are chosen from existing faculty. However, it is **essential** that administrators make time available for meeting regularly or acknowledge the extra time given by TAT members (Chalfant & Pysh, 1989; Hayek, 1987). Common practices are relief from some other extra responsibility (such as monitoring buses or serving on committees). Other options include opportunities to attend conferences, staff development or "career ladder" credit. The critical aspect of this process is the agreement of the team member(s) and principal on a realistic option. The developers can assist schools in identifying and negotiating these options.

A part-time coordinator for TAT at the central office is helpful in districts where TAT is widespread. This coordinator monitors the program, provides orientations for prospective schools and plans for training and other functions. This can be accomplished also through the network process.

4. Facilities

No special facilities are needed to implement the TAT program.

5. Equipment, Materials, and Supplies

No special equipment, materials, or supplies are needed for a TAT program. The TAT process might lead to changes in instructional procedures and methods for a given student or in a given classroom, since any aspect of the educational process might become the focus of a TAT intervention. Changes in these areas are outcomes of TAT, not an integral part of the process.

6. Classroom Arrangement

The classroom environment is not changed directly by the introduction of TAT in a school. The expectation, however, would be that the TAT process would assist in the adoption of effective practices that would transform unproductive classroom environments into productive ones.

7. School and District Organization

School and district-level organization may not be directly affected by the use of TAT. However, the TAT model should not be implemented without reviewing the mission and responsibilities currently assigned to other school committees. The addition of TAT might require some adjustment or modification of school committee mission statements or responsibilities if overlap exists (Pysh, Jacobsen & Chalfant, in press).

IV. MONITORING IMPLEMENTATION OF TAT

The effectiveness and long term maintenance of Teacher Assistance Teams is influenced heavily by the careful implementation of the fundamental core elements of the model as they were designed. Teams can and should mold the TAT model to fit their specific building/faculty context, but the **basic** structure and process needs to remain as intended (Chalfant, Bos & Pysh, 1990). The major factors which contribute to effective TATs have been documented in research studies by Chalfant and Pysh, 1979, 1981, 1989; Chalfant, Bos and Pysh, 1990; Chalfant, Pysh and Moultrie, 1979; Gilmer, 1985; Hayek, 1987; and Pysh and Chalfant, 1989.

The ten major areas which have been found to affect the success of the TAT model include:

1. The decision making process to implement the TAT model;
2. Effective administrative support;
3. Faculty support;

4. Careful planning and selection of team operating procedures;
5. Field testing and revising team procedures;
6. Using efficient pre-meeting activities;
7. Applying the steps in conducting 30-minute TAT meetings;
8. Maintaining team follow-up procedures;
9. Providing on-going technical assistance;
10. Institutionalizing teams.

This section provides a series of questions for each of these ten critical areas, which are related to team success. The developers have used these questions to develop checklists and rating scales for use by superintendents, principals and/or team members to monitor and assess the implementation of Teacher Assistance Teams.

A. Deciding To Implement The Model

For any program to be accepted and utilized in a school, it must be perceived by the faculty and administration as meeting an important need. Therefore, before considering the insertion of any new support system into the district or school, the needs of the faculty must be assessed and their perceptions of the adequacy of current services in meeting their needs determined. Teams which are inserted without faculty input in the decision-making process will struggle and often fail (Pysh, Jacobsen & Chalfant, in press).

1. What are the perceived needs of the faculty? A simple collation and frequency count of responses to three questions will reveal areas of faculty strength, concern and needed support.
    a. List those student problems or curricula issues you feel you handle particularly well.
    b. List the types of student problems/curricula issues with which you would like some assistance.
    c. List the kinds of assistance that would be most helpful to you.

Once faculty strength, needs and desires have been assessed, the administration, and faculty must identify existing resources to meet the unmet needs.

2. What are the missions of existing support systems in your school?
3. Which needs are met or unmet?

4. What kinds of teams currently exist?
    a. Teacher assistance/support teams?
    b. Pre-referral teams?
    c. Multi-disciplinary teams?
    d. Other kinds of teams?
5. Should existing support systems be modified or do we need additional support systems or teams?
6. What kind of three to five year plan is possible with respect to available resources?

If the administration and faculty perceive needs which **cannot** be met by existing support systems, then they should consider exploring a new support system, such as TAT.

B. Providing Administrative Support

If teams are to be successful, it is necessary for administrators at the district and individual building level to resolve important logistical issues which have been found to be related to team success or failure. Administrators can monitor the implementation of support strategies through the use of a simple checklist, which would include the following:

1. **Orientation.** Have funds and time been made available to support orientations for administrators and the faculty of potential team sites? Have printed or other informational materials been distributed?

2. **Training, Follow-up and Technical Assistance.** Have funds and time been made available for:

    a) Initial training of principals and their entire faculties, or the principal and four team members from each school?
    b) A follow-up training session four to six months following the initial training?
    c) Advanced training within one year after implementation and thereafter as needed (e.g., training in communication skills, group dynamics, teacher beliefs, various learning strategies, measuring student progress, student self-esteem and learned helplessness, and student behavioral concerns)?

3. **Logistical Support.** Universally, teams face the problems of finding a regularly scheduled time and place to meet and some form of compensation. These issues must be addressed and resolved by each building administrator if teams are to be maintained successfully (Chalfant & Pysh, 1989; Harrington & Gibson, 1986; Gilmer, 1985;

Hayek, 1987; Rosenholtz, 1985a). Has the administrator resolved the following logistical issues by providing team members:

a) time to meet?
b) a place to meet?
c) some form of negotiated compensation for their extra efforts, such as adjusted time, in-service credit, salary increase credit, etc?

4. **Principal's Support.** Principal support is key to the success of teams (Chalfant & Pysh, 1989; Chalfant, Bos & Pysh, 1990; Gilmer, 1985; Harrington & Gibson, 1986; Hayek, 1986; Hayek, 1987; Pysh & Chalfant, 1989; Rosenholtz, 1985a). Has the principal made personal efforts to support the team by:
   a) becoming an overt advocate for the TAT concept?
   b) trusting team members by supporting their decisions?
   c) encouraging faculty to use the team and verbally reinforcing those who do?
   d) publicizing the team?
   e) serving on the team as needed?
   f) making the team a regular part of the school organizational structure?
   g) publicly acknowledging the efforts and successes of the school team?

C. Faculty Support

Faculty support is critical if TAT is to serve as a collegial problem solving model for teachers to help other teachers. Questions to assess teacher support for TAT follow:

1. How frequently do teachers use the team?
2. Are teachers willing to meet with the team?
3. Do teachers cooperate in implementing team recommendations?
4. Do teachers ask team members for advice?
5. Do teachers offer to cover classes for team members?
6. Are teachers willing to serve on the team?

D. Team Operating Procedures

Team members need to take time to plan the kinds of team operating procedures that will work best in their school. Questions teams must address concerning operating procedures follow:

1. When to meet?
2. Where to meet?
3. What forms should be used?
4. Where should records be kept?

5. What activities and procedures should be accomplished before, during, and after the meeting?
6. How long team members should serve and how they should be rotated?

E. Field-Testing and Revising Team Procedures

Operating procedures should be field-tested with one or two cases to determine whether current procedures are efficient and effective or they need revision before the team begins to offer assistance to any teacher.

F. Pre-Meeting Activities

Teams should periodically monitor their own pre-meeting activities. Questions for determining the effectiveness and efficiency of pre-meeting activities follow:

1. Are the Requests for Assistance/Collaboration completed and received?
2. Did the team assign one member as case manager?
3. Do team members review the request and analyze the problem (prepare the Problem Interaction Diagram)?
4. Do team members share information and list questions in preparation for the teacher interview and/or classroom observation?
5. Is the teacher interviewed by the case manager before the team meeting?
6. Are classroom visits conducted when necessary?
7. Does the team have regularly scheduled meeting times?
8. Does the team have a TAT meeting within two or three weeks after request is returned?

G. Conducting the Meetings

Teams can use a checklist to evaluate their performance after conducting a team meeting. A checklist would provide feedback to the team about the effectiveness and efficiency of the meeting itself for example:

1. Were the steps for conducting the meeting followed?
2. Was a measurement plan developed to evaluate student progress?
3. Were the time limits for each step of the meeting met and did the meeting conclude in 30 minutes or less?
4. Were the requesting classroom teachers' opinions/feelings given precedence at each stage of the meeting? (Chalfant, Bos & Pysh, 1990)

H. Team Follow-up Activities

After the team meeting, team members should closely monitor the kinds of follow-up activities they use. Examples of questions concerning follow-up activities are presented below.

1. Did the team assign one member as case manager to follow-up the case with the teacher?
2. Did the case manager informally contact the teacher to inquire if he/she had any questions about or problems implementing the plan?
3. Did the team members or case manager reinforce the teacher's efforts?
4. Did the team members or case manager offer to visit and observe the student in class?
5. Did the team members or case manager encourage the teacher to return to the team before the scheduled follow-up meeting if needed?
6. Did the team conduct a team follow-up meeting with the teacher within two to six weeks?

I. Providing On-going Technical Assistance

Ongoing technical assistance is needed to help teams respond to logistical, procedural and interpersonal problems among teams and with teachers, as well as those situations where additional expertise is required.

1. What procedures are in place to enable team members to quickly request technical assistance needs?
2. Have resources within the school or district been utilized?
3. Have outside consultants been used?
4. Has a team network been developed which allows team leaders to meet periodically each year to discuss and resolve mutual problems as well as consult with other teams on an individual basis?
5. Has the team network system provided leadership in sharing and compiling intervention strategies used by teams to develop their own intervention strategy book?

J. Institutionalization of Teams

One indication of the success of a team is measured by the permanent institutionalization of the TAT model in the building. This can be assessed by examining the following questions.

1. How is TAT described in the school handbook (if at all)?
2. How many teachers in a building can articulate the purpose of TAT?
3. How many teachers use TAT and is the number increasing?
4. Do teachers return to TAT for assistance on other concerns?

5. How is TAT maintained over time?
   a. Are team members rotated smoothly without team disruption?
   b. Are team procedures maintained efficiently or altered as needed?
   c. Has principal support been maintained?

The monitoring and assessment questions outlined in this section, can serve as a guide for implementing the TAT model initially as well as periodically monitoring existing teams to maintain or enhance their effectiveness over time (Chalfant, Bos, & Pysh, 1990).

V. EVIDENCE OF EFFECTIVENESS

Over the past 20 years, TAT has been widely implemented in school districts in 40 states and six Canadian provinces (Chalfant & Pysh, 1989; Hayek, 1987). The effectiveness of the Teacher Assistance Team model at the local school level in addressing building and student problems is generally measured by: a) teacher satisfaction statements; b) team and teacher consensus about progress on measured objectives; and c) reduction in the number of inappropriate referrals to special education with accompanying reductions in costs for unnecessary testing. Following is a summary of TAT focused research that has addressed the problems addressed by TATs, teacher satisfaction with the TAT process, effect of the TAT process on student outcomes, and the impact of the TAT process on special education referral and identification.

A. Kinds of Problems TATs Address

TATs handle both student and building issues as evidenced in a recent study of TATs in Arkansas (1990). Out of 88 problems addressed by 19 teams between August and December of 1990, 76 (86%) were student problems and 12 (14%) were building related problems, such as scheduling or facilities.

An analysis of specific types of student problems presented to teams was reported by Chalfant and Pysh (1981, 1985, 1988), and Pysh and Chalfant (1989). They collected and classified the intervention goals for 378 students who had an average of approximately four goals each. Of the 1,596 goals written by teams, 939 goals (59%) were related to: work habits (402); classroom and interpersonal behavior (412); and attention (125). Only 342 (21%) of the 1,596 goals were written in the academic areas of reading, printing and writing, arithmetic and spelling. The remaining 315 goals (20%) included problems in such areas as understanding and using oral language, memory, speech, motor performance, physical problems, emotional behavior and visual discrimination.

B. Teacher Satisfaction with TATs

In Georgia where TATs have been implemented statewide, Hayek (1986) questioned teachers in a random sample of 100 schools. Of 1,251 teachers, 963 (77%) agreed that TATs met the critical needs of problem learners.

Two studies in multiple states found teachers' reactions to TATs were overwhelmingly positive. There were 399 statements about TATs made by 218 teachers in 64 schools. Of these, 351 statements (88%) were positive. Only 48 statements (12%) were negative. Teachers were particularly satisfied with: the effectiveness of teams in generating strategies; the provision of moral support; reinforcement by team members; the improvement of student performance; and the facilitation of communication among faculty. Concerns expressed were primarily insufficient time for meetings and failure of the team to generate useful strategies (Chalfant & Pysh, 1985; Gilmer, 1985).

In a Pennsylvania study, 44 teachers made 152 statements about TATs. One hundred positive statements were made expressing satisfaction with the teams. Nineteen statements expressed no concerns about TATs. Only 33 statements of concern were made. The satisfaction and concern statements were similar to those cited above (Pysh & Chalfant, 1989). Factors associated with team effectiveness across two studies were: a) principal support; b) professional and interpersonal knowledge and skills of team members (i.e., generated useful ideas, gave moral support, followed TAT procedures, and created a nonthreatening problem-solving atmosphere); and c) building faculty support (Chalfant & Pysh, 1985; Pysh & Chalfant, 1989).

C. Effect on Students

The evaluation data on the impact of TAT's on students has been collected from the measurement component of the Classroom Intervention Plans created for each student. The team and the requesting teacher analyze the objective data from student performance measures obtained in the classroom, complemented by teacher and/or team observations of student behavior. Together, the teacher and team members determine the degree of intervention effectiveness.

Three criteria were used to determine the "success" of intervention plans implemented by teachers: (a) the student had achieved or nearly achieved the intervention goals that were written and measured; (b) the teacher and the team agreed that the teacher was coping with the problem satisfactorily; and (c) team support had been withdrawn for at least 6 weeks. The use of a consensus procedure on these three criteria complicates the statistical measurement of reliability and validity, but there is a practical advantage to the use of consensus. The thoughtful discussion between the team members and the teacher, leading to consensus, increases the probability of making reliable determinations of successful performance.

Chalfant and Pysh (1981) reported the effects of team planned interventions for 116 non-handicapped students. Of these, the interventions were successful for 103 (88.7%) of the non-handicapped students. Only 13 non-handicapped students were not helped by the team process. All thirty (100%) of the mainstreamed handicapped students were helped by the team process.

Gilmer (1985) studied the proportion of 199 students helped by first year TATs in Illinois, Maine, Maryland and Nebraska. Teams successfully resolved the problems of 143 (72%) of the students served.

A 1989 Pennsylvania study reported the progress ratings of 52 students whose teachers had requested assistance from TAT (Pysh & Chalfant, 1989). Student performance data on the intervention objectives for each student were rated on a five point rating scale by team members accompanied with classroom observations. Team members rated 74% of the students as achieving or nearly achieving their objectives, or making moderate or considerable progress.

D. Impact on Special Education Referral and Identification

The evidence is consistent that TAT does reduce the number of inappropriate referrals to special education. In 1989, Chalfant and Pysh summarized and reported data from 1981, 1985, and 1988, which found reduced numbers of referrals in schools using TAT. Seventy-nine percent (79%) of the 386 students discussed were assisted by TATs without referral to special education. Twenty one per cent (21%) were referred to special education. Of this number, 93% were found to be eligible for special education services. Studying problem-solving teams in California, Schram and Semmel (1984) found they were successful in screening students for special education. Similarly, Talley (1988) reported a 64% drop in the number of inappropriate referrals to special education following the introduction of TATs.

VI. SOURCES OF ADDITIONAL INFORMATION

Additional information and materials about TAT are available from:

Dr. Margaret Pysh
Dr. James Chalfant
College of Education
University of Arizona
Tucson, AZ 85721
(602) 621-3214

In addition, information is available on sites where TAT is currently being implemented.

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PROJECT RIDE (Responding to Individual Differences in Education)

Developed by Great Falls Public Schools (MT), Ray Beck, Project Director

General Description: Project RIDE is a multi-faceted program designed to support the classroom teacher in accommodating at-risk learners in a learning environment that is as close to the regular classroom setting as possible. RIDE has three major components: (1) Effective Classroom Practices (with teacher self-evaluation), (2) a computerized Tactics Bank and a Video Library, and (3) School-Wide Assistance Teams (SWATs). RIDE is grounded in the belief that every student, including those who have disabilities, should be considered the educational responsibility of the entire building staff. Overall, RIDE provides general education teachers with (1) resources for resolving general classroom problems (behavioral and academic), (2) a mainstreaming option for students returning from special programs, (3) prereferral strategies prior to special programs referral, and (4) a process for accommodating the student who does not qualify for pullout programs. There are separate versions of RIDE for elementary and secondary schools; however, both versions have the same purposes and goals, and both operate in an identical fashion.

Target Population: Elementary and secondary school students who are at risk for school failure. This population includes general, remedial, and special education students.

Implementation Considerations: Installing RIDE requires a 1/2" VHS videocassette recorder and monitor, and an Apple II, Macintosh, or IBM compatible PC (with printer). Staff who are members of the SWAT will need to commit one or two hours each week to the SWAT. Teachers will need one day (six hours) of training. It is recommended that the program be considered only if at least one quarter of the teachers in a school are interested in it. Ongoing training is not required, however, followup is strongly suggested three months after implementation.

Program Effectiveness: The developers, who have evaluated Project RIDE in a limited number of small studies, report that the model: (1) is supported by teachers, (2) reduces the number of referrals to special education, (3) decreases the number of inappropriate referrals made to special education, (4) helps to bridge the gap between general and special education through a common interest in serving all students, and (5) generally brings teachers together in solving everyday problems. RIDE's individual components and the specific practices and tactics referenced in RIDE materials are supported by their own set of studies. Project RIDE has been validated by and is included as an exemplary program of the National Diffusion Network.

Costs: One copy of the computerized Tactics Bank, Video Library, and SWAT Training Tape are required for each building. Additionally, a Program Manual is required for each teacher who is trained. RIDE materials generally are not purchased individually without training. Project RIDE staff are available to provide training, the cost of which vary depending upon the number of staff and school buildings involved. In 1990, the cost (including trainer's fee, one set of materials for the building, and 24 Program Manuals) for training 24 teachers from a single building in the Elementary School Version of RIDE was $1,725 plus travel and per diem expenses. Training costs for three teachers from each of eight schools was $735 per building. Training costs for the Secondary Version are 2% to 16% higher, depending upon the numbers of staff and buildings involved.

PROJECT RIDE

Developed by Great Falls Public Schools (MT); Ray Beck, Project Director

I. INTRODUCTION

Project RIDE (Responding to Individual Differences in Education) is a multi-faceted program that provides a series of interventions designed to meet the special needs of each elementary and secondary student, while minimizing the expenditure of both professional and fiscal resources. RIDE is based on the belief that every student, whether typical or at risk, belongs to the educational family and should be considered the responsibility of the entire building staff. For purposes of Project RIDE, an "at-risk" student is any student who is at a high risk for school failure, including general, remedial, and special education students (Beck, 1990a, p.5-7).

RIDE is a support system that uses Effective Teaching Practices, School-Wide Assistance Teams (SWATs), a computerized Tactics Bank, and Video Library. This system operates on the premise that teachers, when provided with the necessary resources and support, can become their own best problem solvers.

There are separate versions of Project RIDE for elementary and secondary students. Both versions (elementary and secondary) have the same purposes and goals, and both operate in an identical fashion. But, they have different tactics in their computerized tactics banks and different videos in their video libraries. The remainder of this document applies to both versions, though differences in the tactics banks and video libraries are noted.

Project RIDE was developed by the Great Falls Public Schools of Great Falls, Montana and is distributed by Sopris West, Inc., of Longmont, Colorado.

A. Purpose and Goals of Project RIDE

The overall goal of RIDE is to accommodate the needs of at-risk learners in a learning environment that is as close to the regular classroom setting as possible. Specifically, RIDE was developed to meet the following general and special education needs (Beck, 1989, p.5-7):

- The need to provide teachers with alternative teaching and behavior management tactics for students who do not qualify for special services but who need social or academic behavior intervention.

- The need to provide general education teachers with mainstreaming tactics so students with disabilities might be educated with their general education peers.

- The need for a prereferral system which increases the probability that students referred to special education are, in fact, students in need of placement.

- The need to better utilize special pull-out programs.

To accomplish this goal and meet these needs, RIDE provides (Beck, 1989, p.5):

- Resources for resolving general classroom problems--both behavioral and academic.

- Classroom tactics and interventions prior to special programs referral.

- Tactics, interventions, and a building-level team process to assist teachers in accommodating the student who does not qualify for pull-out programs.

- Mainstreaming tactics for those returning from special programs.

B. Contribution to Mainstreaming

RIDE provides a systematic approach to academic and behavioral intervention that is designed for mainstreamed special education students and for students who do not qualify for special programs but who cannot meet the academic or social demands of the regular classroom. This includes students who may later be referred for special education evaluation, as well as the "borderline special-education student" and the student "who is 'falling in the cracks'" because he/she does not qualify for special education. RIDE is not intended to provide an alternative to special education and is not a service exclusively for students who are already receiving special education services (Beck & Weast, 1989, p.1).

The developers emphasize that although RIDE may serve to meet the pre-special education referral requirements in some states, it is not an evaluation process for special education. When the RIDE program is complete, a student may be referred for evaluation to determine eligibility for special education. The RIDE program is not designed to make a decision that a student is special education eligible, though evidence obtained as a result of Project RIDE interventions may contribute to that decision.

C. Development and Foundation

Project RIDE was developed by the Great Falls Public Schools, Great Falls, Montana, in response to a number of interrelated issues (Beck & Weast, 1989). A general issue was the practical need to effectively serve an increasingly disabled special education population, while accommodating in regular classroom settings those students who have mild disabilities or who do not have a disability but who are considered to be "at-risk." Specific issues cited included the following: an increasing number of preschool children with disabilities, who would need extensive services throughout their schooling, were being identified; escalating costs of providing special education because over half of the students referred to special education were determined to be ineligible according to federal, state, or local guidelines; and a significant number of students who were not qualified for various pull-out programs were not meeting any success in the regular classroom. Additionally, the school system was spending a significant amount of money on evaluations of students who were referred for special education but who did not qualify--even though they seemed incapable of success in a traditional classroom.

The Great Falls Public Schools determined that (1) the cost-effective way to address these issues was to put in place proven classroom practices that were practical, readily available, and non-threatening and (2) general education teachers could learn new classroom practices without extensive retraining. Research literature on proven classroom practices was gathered and reviewed with the goal of developing a program that would "assist classroom teachers in retrieving proven, practical, and efficient interventions for the atypical student" (Beck & Weast, 1989, p. 3). The idea was to take advantage of researched interventions reported in the professional literature, present them in language with which teachers would be comfortable, demonstrate the effective tactics, and utilize the knowledge and experience of fellow classroom teachers who have experience with at-risk students to assist those teachers who do not.

The approach taken by Project RIDE is one of cooperation and collaboration between special and general education teachers (Beck & Weast, 1989), an approach that has been championed by a number of educators in recent years (e.g., Lieberman, 1984; Stainback & Stainback, 1984; Wang, Reynolds, and Walberg, 1988; Will, 1986). This approach also has been supported indirectly by those who have questioned the labeling and categorical program placement of students who have mild disabilities or are low achievers (e.g., Heller, Holtzman, & Messick, 1982; Jenkins, Pious, & Peterson, 1988), and by others who have suggested a need for a complete revision of the relationship between special and general education (e.g., Madden & Slavin, 1983; Reynolds, Wang, & Walberg, 1987; Gartner & Lipsky, 1989).

The individual components of Project RIDE each have their own foundation in the literature. Effective Classroom Practices is "based upon an extensive review of the effective schools literature" (Beck & Weast, 1989, p. 3), while the tactics in the Tactics Bank and Video Library were "taken directly from 53 refereed journals and 25 professional texts" (Beck & Weast, 1989, p. 4). One or more references are presented at the end of each of the approximately 364 tactics presented in the elementary and secondary Tactics Banks. A panel of teachers decided which tactics would be in the computer bank and which tactics would be presented on videotape.

The School-Wide Assistance Team (SWAT) is modeled directly after the Teacher Assistance Team (TAT) created by James Chalfant and Margaret Pysh (Chalfant, Pysh, & Moultrie, 1979) during the early 1970s in the state of Illinois. TAT was further developed and evaluated in seven states (Alaska, Arizona, Illinois, Kentucky, Maine, Maryland, and Nebraska) in schools which ranged from 20 to over 1000 students in urban, suburban, and rural settings. The design of the TAT program relies extensively on the literature on group problem-solving dynamics. The early development of TAT was not guided by a particular theory. Rather, TAT evolved from the practical problems and issues associated with the referral, evaluation, placement, and mainstreaming of special education students. It was basically an effort to create general education options for students with learning and behavior problems by providing immediate and relevant help for teachers in individualizing instruction in mainstream settings.

The two chief developers of Project RIDE, Ray Beck and Jerry Weast, were the Director of Special Education and Superintendent, respectively, of the Great Falls Public Schools (GFPS). The program was developed with school district research and development funds and with funds from the National Center for Learning Disabilities. Teachers and other school personnel were employed, along with university faculty, to develop the various components of Project RIDE. After the program was developed, the developers decided to repay the school district by selling materials and conducting training in other districts. Initially, dissemination occurred by word of mouth. As demand grew, district personnel were unable to meet the demand and perform their regular functions. The GFPS formed a partnership with Sopris West, Inc. to assist in packaging, distributing, and disseminating materials. Training is also organized through a network of Sopris West trainers.

D. Key Principles Upon Which Project RIDE is Based

The following basic principles or beliefs guided the development of Project RIDE (Beck & Gabriel, 1989; Beck & Weast, 1989):

- Every student (whether they have a disability or are at-risk) belongs to the building and should be the responsibility of the entire building staff.
- The services in a building should be provided in a holistic way, rather than separated into general and special education services. This results in a cohesive and coordinated approach to solving problems.
- One of the most frustrating problems facing educators today is meeting the needs of "at-risk" students who are not eligible for special pull-out programs but who cannot meet the academic and social demands of the regular classroom.
- Many teachers have not had appropriate training of remedial techniques and are not always prepared to deal with students who have special learning needs or who are disruptive.
- Educating students with disabilities to the maximum extent possible with their non-disabled peers is not only a requirement of PL 94-142, but it is the right thing to do.
- Because of the increasing population of students who have severe disabilities, we are approaching the point where those with mild disabilities must, by necessity, be served within general education programs.

- Because of the cost of psycho-educational assessment, efforts should be made to reduce the number of unnecessary referrals for testing.
- There are not adequate alternatives to pull-out programs.
- General classroom teachers have the expertise and experience to support each other in resolving many classroom problems.

II. PROJECT RIDE DESCRIPTION

Project RIDE has three major components: Effective Classroom Practices (with teacher self-evaluation), Tactics Bank and Video Library, and School-Wide Assistance Teams. According to the developers, none of the components is effective in isolation. The three components must be adopted as a package to accomplish the purposes of the program.

These components, which are described in detail in program literature (Beck & Gabriel, 1989; Beck & Weast, 1989), are briefly described below. The "classroom practices" and "SWAT" components are the same for the elementary and secondary versions, but the Tactics Banks and Video Libraries differ in order to accommodate the different developmental levels of the the students served in the two versions.

The RIDE process for using these components is simple. First, the teacher identifies and describes the student behavior that causes concern. Depending on the nature of the behavior, the teacher then employs one of three options: (a) use one or more of the program's effective classroom practices (some modifications or refinements to the existing practice may be required); (b) use a tactic from the Tactics Bank and/or Video Library; or (c) refer the problem behavior directly to the SWAT. The student is referred for evaluation to determine the need for special education (or other services) only if these alternatives are unsuccessful (Beck, 1990a, p.9).

A. Effective Classroom Practices

The Effective Classroom Practices component is designed to allow teachers to examine the extent to which their classroom practices are consistent with practices that are supported by research. The practices were developed following a review of the effective schools literature. "Clearly defined and proven" practices were identified, were organized around 12 themes with 52 substatements, and are presented in "practitioner language" (Beck & Gabriel, 1989). The twelve themes, each with an example of a substatement, are as follows:

- Instruction is guided by pre-planned curriculum.
    - Learning goals and objectives are developed and prioritized according to district and building guidelines, selected or approved by teachers, sequenced to facilitate student learning, and organized or grouped into units or lessons.
- High expectations are established for student learning.
    - All students are expected to attain the level of learning needed to be successful at the next level of education.
- Students are carefully oriented to lessons.
    - Teachers help students get ready to learn. They explain lesson objectives in simple, everyday language and refer to them throughout lessons to maintain focus.
- Instruction is clear and focused.
    - Lesson activities are reviewed; clear written and verbal directions are given; key points and instructions are repeated; and student understanding is checked.
- Learning progress is closely monitored.
    - Teachers require that students be accountable for their academic work.
- When students don't understand, they are retaught.
    - Teachers reteach priority lesson content until students demonstrate competence.
- Class time is used for learning.
    - Teachers follow a system of priorities for using class time, allocating time for each subject or lesson. They use class time for learning and spend very little time on non-learning activities.
- There are smooth, efficient classroom routines.
    - Administrative matters are handled quickly and efficiently and class disruptions are kept to a minimum.

- Instructional groups fit instructional needs.
  - When introducing new concepts and skills, teacher led, whole-group instruction is preferable.
- Standards for classroom behavior are explicit.
  - Teachers let students know that there are high standards for behavior in the classroom.
- Personal interactions between teachers and students are positive.
  - Teachers let students know they really care about them.
- Incentives and rewards for students are used to promote excellence.
  - Rewards are related to specific student achievements. Some rewards may be presented publicly, some should be immediately presented, while others are delayed to teach persistence.

Teachers' self-evaluations of the effectiveness of their present classroom practices are aided by the use of an instrument, the Effective Classroom Self-Evaluation Form. This evaluation can be completed in 15 minutes or less (Beck, 1990a, p.29).

B. The Computer Tactics Bank and Video Library

The tactics differ from the Effective Classroom Practices described above in that they are specific interventions targeted toward specific academic and behavioral problems. Most of these tactics, though they might have been known to and used by teachers for a number of years, were buried in the research literature and/or in a form that was of little practical use to classroom teachers.

The Tactics Bank for elementary students was developed after asking regular classroom teachers in four elementary schools to compile a list of the top 40 behavioral and academic problems found in their classrooms. They were asked to describe those problems that caused classroom disruption, interrupted learning, were likely to cause referrals to special education, and/or would prevent students with mild disabilities from returning to the mainstream. Twenty social problems and 20 academic problems or issues were identified. Examples of identified social problems include: fighting, daydreaming, stealing, noncompliance, cheating, tattling, and poor classroom posture. Examples of academic issues addressed include: completing schoolwork on time, self-esteem, paying attention, attendance, following written directions, getting help, and transition. Based on a review of literature, multiple intervention tactics were developed to address each of the identified problems or issues, producing a computer data base of over 250 tactics (Beck & Gabriel, 1989, pp.55-63).

The Tactics Bank for secondary students was developed after asking over 300 secondary general and special education teachers in four states to list behavioral characteristics of students considered at risk for school failure. Teachers reported that study skills and social skills were the areas of most concern. These two areas were followed, in order of priority, by attendance, motivation, basic skills, compliance, self-esteem, attitude, long range goals, and participation. A review of the literature yielded a number of tactics that were reviewed by a panel of secondary classroom teachers, including teachers of science, home economics, English, reading, physical education, biology, foreign language, social studies, math, and special education. This panel selected 112 proven research-based tactics for addressing these areas. These tactics were rewritten in practitioner language and placed in computerized files (Beck, 1990a, p.38-39).

User-friendly software was developed for Apple (Model II and Macintosh) and IBM computers in order to make the tactics immediately available, in a step by step fashion, on a monitor and in print form. The following information is provided for each tactic in both Tactics Banks (Beck & Weast, 1989, p.55; Beck, 1990a, p.39):

- Short introductory statement.
- Steps necessary to carry out the procedure.
- Monitoring guidelines to determine if the tactic is having a positive effect.
- Special considerations that should be followed.
- The original reference.

The Video Library for each version (elementary and secondary) is an extension of the Tactics Bank. The "elementary" Video Library contains six professionally developed video tapes that present 19 academic and 20 social tactics from the Tactics Bank. The tactics are presented in the form of classroom scenarios, each lasting five to eight minutes. The Video Library for the secondary version of RIDE uses secondary students as subjects and contains 5 tapes that model 17 instructional or remedial tactics. Each taped scenario is 8 to 10 minutes in length and uses actual classroom situations to demonstrate the interventions. Nearly half of the secondary video scenarios focus on the area of study skills and social skills, the most frequently cited areas of concern. Both libraries are designed for a 1/2" VCR and color monitor (Beck, 1990a, p.44; Beck & Gabriel, 1989, p.65).

C. School-Wide Assistance Team

The School-Wide Assistance Team (SWAT) is modeled on the concept of the Teacher Assistance Team (TAT) (Chalfant, Pysh, & Moutrie, 1979), which is based on the premise that regular classroom teachers have the expertise and experience to support each other in resolving many classroom problems (Beck & Weast, 1989). The SWAT model is an extension and refinement of the original TAT, and in many districts the terms are used interchangeably (Beck, 1990a, p.50).

At the 15 schools visited as part of the examination of Project RIDE, the assistance team is called SWAT at only one school. Most commonly, the team is referred to as the TAT, reflecting the historical precedence of TATs in the schools visited. Other names include RIDE team and intervention team. At most of the visited schools, assistance teams meet weekly, though in some schools the team meets on an as-needed basis. The time of the meetings varies, with some meeting before or after school and some meeting during the school day. The classroom of one of the team members or an available conference room is used as the meeting place. Teams are composed of three or four general education teachers who have been elected by their peers and serve for one to three years.

The SWAT incorporates the Effective Classroom Self-Evaluation Form, the Tactics Bank, and the Video Library into the assistance team process. It functions in a similar manner to TATs. The team process begins when a teacher refers a problem to the team.

The team reviews the request and the team leader assigns the request to a case manager who reviews the request and meets with the teacher to discuss and clarify the problem. After information is gathered and the referring teacher provides an assessment of the problem, the team meets for approximately 30 minutes in a problem-solving session. In this session, the team and the referring teacher jointly conceptualize the problem, identify objectives, brain-storm alternative solutions, and plan a course of action that includes a follow-up plan for evaluation. After the interventions have been tried for at least two weeks, a follow-up meeting is held with the referring teacher to discuss the results of the interventions. If the problem is not resolved, the process is repeated, often with the addition of a resource person such as a school psychologist, a special education teacher, last year's teacher, the building principal, a parent, or any combination of these. If the problem remains unresolved after this round, it is referred for special education evaluation or for other support services.

III. PROJECT RIDE IMPLEMENTATION

A. Project RIDE in Action

Martin is a third-grade student and his teacher, Mrs. Johnson, is concerned about him. Martin has begun complaining about assignments, has difficulty settling down to work, and when he finally does get around to his assignments, he rarely completes them in the time allotted. Mrs. Johnson decides to consult Project RIDE. First, she completes the Behavioral Description form provided in the Project RIDE Program Manual by responding to the following seven items: (1) describe the behaviors observed, (2) describe what you would like the student to be able to do that he/she does not presently do; (3) describe the behavior that you want the student to decrease or eliminate; (4) describe what you do when the student performs the behavior incorrectly; (6) describe how you monitor the behavior you want; and (7) describe how you monitor the behavior you don't want.

Next, Mrs. Johnson completes the Effective Classroom Self-Evaluation Form to determine the effectiveness of her classroom practices and in particular to determine how her classroom practices might be modified to change Martin's behavior. Her responses to the 54 yes/no questions revealed that standards for classroom behavior may not be explicit enough (Mrs. Johnson responded "no" to the questions "Do I consistently deliver specific positive reinforcement for acceptable behavior?" and "Do I reduce disruptions during teacher directed instruction?").

Mrs. Johnson goes next to the Tactics Bank to find possible solutions to Martin's complaining and slow work habits. She selects two activities from the list of Social Tactics: "Ribbon Reward" and "Ignoring One and Praising the Other" and two activities from the Academic Tactics list: "Beat the Timer Game" and "Self-Recording and Charting." Mrs. Johnson then goes to the Video Library to see if any of the tactics she has chosen are illustrated through the video tapes. She finds that "Beat the Timer" and "Ribbon Reward" are available and checks out these tapes to view that evening at home. Mrs. Johnson decides to begin "Ribbon Reward" and "Beat the Timer" the following day. She plans to introduce the other two activities later in the week.

After using the tactics for three weeks, Mrs. Johnson decides that Martin's behavior has not improved significantly. He is doing better at completing his work on time but still complains a lot. Mrs. Johnson decides to complete a Request for Assistance form and submits it to the School Wide Assistance Team (SWAT).

Mrs. Johnson's request is assigned to a case manager (i.e., one member of the team) by the team leader. The case manager reviews the request, schedules time with Mrs. Johnson to discuss and clarify the problem, and arranges to observe Martin during class time. Following these activities, Mrs. Johnson is scheduled for a problem-solving meeting with the SWAT.

The problem-solving meeting only lasts 20-30 minutes but at the end of the meeting an Action Plan has been developed for Mrs. Johnson to use in her classroom. Development of the Plan began with the team and Mrs. Johnson reaching consensus about the nature of the behavior Mrs. Martin was interested in changing: she wanted to extinguish Martin's complaining about school work. Next Mrs. Johnson and the team generated a list of possible strategies for improving Martin's behavior through brainstorming (i.e., permitting everyone in the meeting to share ideas within a specified time period). All ideas generated during the brainstorming session were written down and following the brainstorming session Mrs. Johnson reviewed the suggestions and selected those that most appealed to her. She agreed to try the interventions for two weeks. A follow-up meeting was set for the purpose of discussing the results.

During the follow-up meeting two weeks later, Mrs. Johnson reported that Martin's complaints had decreased significantly. She plans to continue implementing the strategies until she is certain Martin's new behavior has become a permanent part of his repertoire.

B. Participant Roles

1. Students

Since Project RIDE focuses on expanding the knowledge and practice of teachers, students do not have a direct role in the implementation of Project RIDE. However, they must be willing to work with teachers to modify their behaviors.

2. Teachers

Project RIDE focuses on teachers working together to develop knowledge of, and skill in, implementing effective teaching and classroom practices. Teachers using RIDE will take on one of two roles: (a) referring teacher and/or (b) assistance team member. In the referral role, a teacher identifies and describes the student behavior(s) of concern and then accesses one or more of the RIDE options (effective classroom practices, Tactics Bank, Video Library, or SWAT). The teacher's approach to resolving the concern may be independent, or it may involve problem solving strategies with fellow teachers. The teacher must then take responsibility for learning about and implementing effective strategies. Teachers and principals at several schools that were visited noted that the informal use of the RIDE problem-solving technique has become pervasive in their schools. Teachers meeting in the lounge or restroom often discuss problems with each other or with team members with the discussion taking on the structure of an assistance team meeting.

Teachers who serve as members of the SWAT provide support to teachers who are concerned about students' behaviors. Teachers who serve on the SWAT must have credibility with other staff, i.e., they must have knowledge of and experience with effective instruction, respect of students and staff, good interpersonal and communication skills, and the ability to maintain confidentiality (Beck & Gabriel, 1989). One member of the SWAT must be selected to serve as the team leader. The team leader coordinates the team process, facilitates team meetings, and schedules and monitors follow-up activities.

3. Administrators

As with any program, RIDE needs the active support of the principal; however, participation by the principal or assistant principal in the SWAT might serve to hinder the process by inhibiting the teacher collaboration on which the process is based. Principals can facilitate the implementation of Project RIDE by demonstrating positive support of the SWAT (i.e., providing time and space for the SWAT to meet and encourage teachers who are seeking help to contact the team). The developers describe Project RIDE as being consistent with the trend toward the principal as educational leader because it arms administrators with learning and behavior management strategies. Principals in some of the schools visited during an examination of Project RIDE noted that the RIDE program has taken some of the discipline burden off the administration because teachers handle more classroom problems on their own.

4. Parents/Community

As with any program or instructional method, the home can be a major ally of the teacher and school in reinforcing positive student behaviors. Also, parents may be involved in the SWAT process.

C. Implementation Requirements

1. Planning

The developers recommend that the program not be mandated in a school but that teachers be oriented to the program and be given a choice over whether their school will participate. If the program is desired by even a quarter of the teachers in a school, it is feasible for that school. Once a school has decided that it will participate, planning for implementation should begin.

Preparations for the implementation of Project RIDE include scheduling of training, establishing the SWAT (selecting members, setting up the process and procedures that will be used by the team, development of referral forms, determining when and where the team will meet), and preparing the school staff for the introduction of RIDE (i.e., what RIDE is, the SWAT process, and how to access the video library and tactics bank). Once Project RIDE is in place, planning is minimal. In most schools, once a year new elections are held for one or more members of the SWAT.

At the ten schools visited as part of the examination of Project RIDE, the extent of implementation of the model varies greatly. The schools essentially utilize two of the three RIDE components: School-Wide Assistance Team (SWAT) and Tactics Bank/Video Library. The Effective Classroom Practices (with teacher self-evaluation) component has been used at only one school, and this was as an in-service exercise. At all the schools, the work of the SWAT is the chief RIDE-related activity. The Tactics Bank and Video Library are used mainly as independent activities by teachers, though they are sometimes used to support the SWAT process. The Tactics Bank and Video Library materials typically are kept in the school's media center and could be used in the media center or checked out overnight.

2. Training

Project RIDE staff offer training either to the entire staff of a school building or to teams from a number of buildings who can then install the program in their buildings. Installation in a building where only some of the teachers were trained would require orientation, but not training, of the rest of the faculty. The complete training takes one day (six hours). The recommended number of trainees at each workshop is 24 and the cost depends both on the number of trainees and the number of schools they represent because the cost of materials is included in the cost of training.

Although RIDE materials may be purchased individually (i.e., the Tactics Bank can be purchased without the other components), it is not recommended that they be purchased and implemented without training. One copy of each of the following materials are required for each building: Computerized Tactics Bank, Video Library, and SWAT Training Tape. Additionally, a Program Manual is required for each teacher who is trained. In 1990, the cost (including trainer's fee, one set of materials for the building, and 24 Program Manuals) for training 24 teachers from a single building in the Elementary Version of RIDE would be $1,725. The cost of training six teachers from each of four schools would be $4,050 or $1,012 per building(training plus material costs). The cost of training three teachers from each of eight schools would be $5,900 or $735 per building (training plus material costs). The training costs for the Secondary Version are 2% to 16% higher than for the Elementary Version, depending on the numbers of staff and buildings involved. For example, training costs $2000 (excluding travel and per diem expenses) for 24 teachers in a single building, $4600 for six teachers from each of four schools, and $6000 for three teachers from each of eight buildings.

Goals for the one-day RIDE training session are that participants will be able to (a) demonstrate the skill of describing rather than labeling problem behaviors, (b) modify and/or refine current classroom practices in accord with effective schools research, (c) select and match tactics from the Tactics Bank/Video Library with classroom problems, and (d) effectively use the SWAT process.

The developers recommend ongoing training for teachers who have already been trained in RIDE. Though the developers describe the materials as sufficiently self-explanatory and self-supporting, follow-up training is suggested. New members of a SWAT, who may not have been formally trained in the process, can be "trained" by observing the SWAT training tape, the actual process, and reviewing the Video Library and the Tactics Bank.

Most important for maintenance of the program is an ongoing influx of new ideas, both in relation to the SWAT process, the Tactics Bank, and Video Library. SWATs are invigorated by new members. The Tactics Bank provides a built-in mechanism for refinement and modification of the program. The developers plan to provide periodic updates of the tactics based on new research. The updates will be distributed to current RIDE schools at a small cost. The developers also encourage schools or districts to build their own tactics bank or to create their own videotapes with an emphasis on tactics that work in their location.

3. Staffing

No additional staff are required for implementation of RIDE. The staff who are members of the SWAT at each school will need to commit one or two hours each week to the SWAT. This time may be in place of other teacher duties, such as serving on a committee, or teachers may be paid to perform this extra duty before or after school.

4. Facilities

No special facilities are required.

5. Curriculum, Equipment, Materials, and Supplies

Project RIDE supports the modification and refinement of classroom practices in instruction and behavior management, but it does not prescribe a specific curriculum or method of instruction. Installing the RIDE program in a school requires a 1/2" VHS videocassette recorder and monitor and an IBM PC, an Apple II or Macintosh computer. Materials needed for the program include the RIDE Program Manual (which includes the "teacher self-evaluation" tool), Video Library, Tactics Bank, and SWAT Tape. There are no consumable supplies for the program.

5. Classroom Arrangement

No special groupings or classroom organization are necessary.

6. School and District Organization

Project RIDE does not require changes in school or district organization.

IV. MONITORING IMPLEMENTATION OF PROJECT RIDE

A. Students, Classroom, and Building-Level Outcomes

The Project RIDE program includes a process for systematically measuring program outcomes. As described under Evidence of Effectiveness below, a subjective measure can be made of the success of the RIDE program by polling teachers on the outcome with a particular student. The SWAT process lends itself to this method, which occurs naturally in the cycle of the process as a teacher reports success or returns to the team for further assistance.

Use of RIDE tactics may be hard to measure because teachers may use the Effective Classroom Practices, the Tactics Bank, or the Video Library without the assistance or knowledge of their colleagues.

B. Overall Program Implementation

Project RIDE includes a component for measuring program outcomes. This component is available upon request to each adopting school building.

V. EVIDENCE OF EFFECTIVENESS

Evidence of the effectiveness of Project RIDE is available through studies conducted by the developers, independent research into the effectiveness of the specific tactics that RIDE contains, and research on the TATs that served as the model for the SWATs.

A. Studies by Developers

An evaluation study on the effectiveness of Project RIDE, conducted by the developers (Beck & Weast, 1989; Beck, 1988), used a multiple baseline design to examine the effectiveness of the program in six pilot elementary schools in Great Falls, Montana. The six schools are representative of the schools in the Great Falls Public School district, which means that the students are predominantly white and middle class. The following results are reported:

- Project RIDE reduced the number of referrals to special education. Each of the six schools experienced a substantial reduction in the number of special education referrals and that reduction was sustained throughout the treatment phase measured in the study (a period of up to three years). Based on the average number of referrals per year for all six schools combined, the referral rate was more than cut in half by the program (56% reduction).

- Project RIDE decreased the number of inappropriate referrals made to special education. This was measured by counting the number of students who were referred to but not accepted for special education (counting only first-time teacher referrals).

  Across the six schools, the percentage of inappropriate referrals decreased from an average of 54% to an average of 21%.

- Project RIDE produced a cost savings for the district. The decrease in the number of referrals for evaluation (at an average cost of $400) led to an estimated savings in materials and psychologist's time of over $34,000. Extrapolating these results to the entire district, a savings of $97,000 is estimated.

As part of this evaluation study, case studies were conducted in two of the six elementary schools. In one building RIDE had been implemented two years earlier, while in the second, the project was in it's first year. Teachers in these two schools kept records of the number of academic or social problems they encountered over a six-month period and the way these problems were resolved. There were 68 problems identified in the first school and 54 in the second. Of these problems, 56 (82%) in the first school and 47 (87%) in the second school were solved by teachers independently using Project RIDE strategies, while eight (12%) in the first school and five (9%) in the second school were solved by SWAT. Four (6%) students from the first school and two (4%) from the second school were referred to special education, with three of the four and one of the two qualifying, respectively.

The developers also report anecdotal evidence and comments from teachers that indicate support for Project RIDE. According to the developers, teachers reported that Project RIDE:

- Helped to bridge the gap between general and special education through a common interest in serving all students regardless of label or nature of disability.
- Helped to create an atmosphere that all kids belong to the building and as such are part of an educational family.
- Enhanced the interaction between staff by building the idea of a "team" approach to everyday problems.
- Reduced the frustrations that staff members were feeling over their inability/unpreparedness to deal with the problems created by children with special needs.
- Reduced the feelings of isolation felt by many teachers who had to deal with difficult problems without adequate resources and support.
- Allowed staff to more confidently deal with a problem child with the knowledge that the selected intervention had the backing of a team of professionals.

In a study conducted in a single district in Utah during the 1988-89 school year, Beck surveyed teachers who had referred students to a School-Wide Assistance Team (Beck, 1990b). In 18 elementary schools, 405 students, representing approximately 3% of the student population, had been referred. Two hundred thirty-two (57%) of these students were in grades K-3 and 173 (43%) were in grades 4-6; 300 (75%) were male and 105 (25%) were female. Based on teacher reports, 79% of the cases were judged to have been successfully resolved; the other 21% were either judged to be unsuccessful or were in the process of "being judged." The results were approximately the same across grade levels and for males and females.

Beck also reports on the results of a study he conducted in Great Falls, Montana, to look at a general effect of Project RIDE on teachers (Beck, 1990c). In 15 elementary schools, he asked teachers to identify students in their schools who they felt were disabled, maladaptive, or behaving inappropriately but who were receiving no special services. In

Project RIDE schools, the average number of students per school who were so identified was five, while in non-Project RIDE schools the number was 15. Beck attributes this difference to the support system created by Project RIDE that leads teachers not to view children as maladaptive or disabled.

B. Independent Validation of RIDE Tactics

According to Beck (1991), all of the 360 plus tactics offered through the RIDE process were taken directly from research reported in refereed professional journals. Each tactic had been thoroughly evaluated, found to be effective, and met the vigorous academic standards imposed by the journal of publication. Tactics were abstracted with a high degree of fidelity by the program authors. In this way, Project RIDE did not need to evaluate the effectiveness of its tactics. To the contrary, RIDE was defined by tactics that had been shown to be effective.

It is also important to note that Project RIDE has been validated by the U.S. Department of Education and is included as an exemplary program in the National Diffusion Network.

C. Teacher Assistance Teams

Over the past 10 years, Teacher Assistance Teams, on which School-Wide Assistance Teams (TATs) are modeled, have been widely implemented in school districts throughout the United States (Chalfant, 1984; Hayek, 1987). Though the evidence regarding TATs is also limited, it is relevant because of the similarity between SWAT and TAT. Chalfant and Pysh (in press) summarized the results from five descriptive studies on 96 first-year teams, while independent evaluations have been reported by Graden, Sasey and Bonstrom (1985) and Harrington and Gibson (1986). These studies have addressed the kinds of problems presented to teams, the effects on student performance, the impact on special education referral and identification, teacher satisfaction, and factors associated with effective and ineffective teams.

As with SWAT, evaluation of TAT on student outcomes has been based solely on teacher judgment. Chalfant and Pysh (1981) reported an 88.7 percent teacher-reported success rate for students who did not have disabilities, and Gilmer (1985, as cited by Chalfant & Pysh, in press) reported a 72 percent success rate. In two additional studies, success was rated by teachers and team members who described 44 percent of the students as making great or considerable progress, 35 percent as making moderate progress, and 24 percent as making little or no progress (Chalfant and Pysh, 1985, 1988). In general, the evidence is reasonably consistent that TAT does reduce referral and identification rates. In three Chalfant and Pysh studies (1981, 1985, 1988), 21 percent of the 386 students who received TAT assistance were referred to special education and, of this number, 93 percent were found to be eligible. Talley (1988, as cited by Chalfant & Pysh, in press) reported a 65 percent drop in the number of inappropriate referrals to special education. Graden, Casey, and Bronstrom (1985) found reduced referrals in four schools that implemented TAT, but they found no change from existing practices in two others.

VI. SOURCES OF ADDITIONAL INFORMATION

For additional information about Project RIDE, including training for the program and the names of referral sites that are currently implementing the program, contact:

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NORTH CAROLINA LEAD TEACHER MODEL

Developed by the Public School Forum of N.C.

General Description: The North Carolina (NC) Lead Teacher model is a restructuring approach that is designed to increase student performance by increasing the autonomy that teachers and local schools have in making decisions about nearly all aspects of instruction and the school environment. The program's developers describe it as a two-pronged restructuring effort that alters the structure of schools by (1) decentralizing instructional decision-making authority and (2) reconfiguring the way teachers work with each other. Building-level manifestations of the NC Lead Teacher model vary from site-to-site because the model provides only general guidelines; specific program components are developed locally. The only requirements are that schools structure their faculties around teams led by a Lead Teacher and that they develop accountability programs to assess the program's effect in their building. The team approach fosters an attitude of responsibility for all students in the school, including those with special learning needs. Control over decisions about what and how to teach gives teachers confidence in their capacity to teach the full spectrum of learners and gives them the opportunity to explore a variety of methods of instructing children with and without disabilities.

Target Population: The NC Lead Teacher program is a building-level restructuring model that focuses on involving teachers in the instructional decision-making process. Lead Teacher has been implemented in elementary, junior/middle, and high schools and, in practice, affects all staff and students. Though the model does not directly address the issue of integrating students with disabilities into regular education settings, it fosters three practices/climates that are important to integration: team teaching; an attitude of responsibility for all students; and a confidence among teachers in their capacities to teach the full spectrum of learners.

Implementation Considerations: Because implementation of Lead Teacher requires significant organizational change at the building-level, it is recommended that a year be set aside for planning prior to implementation. It is important for all school staff to be involved in the decision to implement Lead Teacher for everyone will be impacted when the program is implemented. In NC, enabling legislation was enacted to permit building-level autonomy regarding allocation of financial and human resources. The legislation freed participating schools from most State policies, rules, and regulations governing these allocations.

Program Effectiveness: Research on the effectiveness of the NC Lead Teacher model is limited but data gathered from the original six schools in the NC Lead Teacher project show: (1) improvements in such student outcomes as academic achievement, self-esteem, attitude toward school, satisfaction with school, attendance, peer relations, suspensions, discipline problems, and dropout rate; (2) increased parent satisfaction with the schools; (3) improved teacher morale and work satisfaction; and (4) strong endorsement by 80 to 90 percent of the teachers.

Costs: Costs will vary from school to school. Planning time is necessary to prepare for and sustain implementation. Training and technical assistance may be required in developing an accountability system. In 1989, participating schools' annual training budgets ranged from $5,400 to $15,600. Additional teaching staff are necessary to provide Lead Teachers with release time from classroom teaching responsibilities, typically for half of each day. Other costs may emerge as a result of the specific plan developed for each school.

NORTH CAROLINA LEAD TEACHER MODEL
Developed by the Public School Forum of NC

I. INTRODUCTION

The North Carolina (N.C.) Lead Teacher model is a developing program that is designed to increase student performance by increasing the autonomy that teachers and local schools have in making decisions regarding nearly all aspects of instruction and the school environment. The developers of the program describe it as a two-pronged reform that alters the structure of schools by (a) decentralizing instructional decision-making authority and (b) reconfiguring the way teachers work with each other (Public School Forum of North Carolina, 1989b). Essentially, Lead Teacher is a program that professionalizes the teaching environment, emphasizes participant involvement in the process of change, stresses site-based management, and recognizes the importance of culture in creating meaningful reform.

A. Purpose and Goals of NC Lead Teacher

The purpose of the restructuring called for by N.C. Lead Teacher is to create fundamental changes in the culture of the schools, rather than simply to change organizational or technical structures that are more commonly the focus of organizational change. The goals of the program are to improve student performance outcomes and to increase teacher satisfaction and thereby increase productivity. The central strategy for meeting these goals is "teacher empowerment." For the N.C. Lead Teacher program, teacher empowerment means the establishment of the Lead Teacher role in schools that voluntarily participate in the program. It also means increases in building-level autonomy and, to make this autonomy meaningful, freedom from most State policies, rules, and regulations governing the allocation of financial and human resources. The program is supported by enabling legislation (Section 205, Chapter 738, 1987 Session, N.C. General Assembly) that chartered Lead Teacher as a pilot program in three North Carolina counties. The legislation provides supplemental funding as well as exempting Lead Teacher sites from most state rules and regulations.

B. Contribution to Mainstreaming

The N.C. Lead Teacher program does not directly address the issue of integration of students with disabilities into regular education settings. As noted previously, the program addresses organizational and decision-making processes at the school level. Changes generated by Lead Teacher are specific to each location. The potential for Lead Teacher to have an impact on integration is great, however. This potential is created by the team approach that Lead Teacher fosters and by the creation of an attitude of responsibility for all students. This attitude extends beyond classroom walls or subject areas. The establishment of a climate that emphasizes the abilities of teachers, and gives teachers the power to make decisions about what they teach and how they teach, leads to increased confidence in teachers and their capacities to teach the full spectrum of learners. The control over decisions also gives regular classroom teachers the opportunity to explore a variety of methods for instructing all children.

The legislation that exempted Lead Teacher schools from most State policies, rules, and regulations in North Carolina did not exempt those schools from federal rules and regulations related to serving students with disabilities. Lead Teacher schools, therefore, follow the same procedural and service delivery guidelines as other schools with regard to their students who have disabilities. Nevertheless, a number of specific effects of the Lead Teacher program on special education students and services have been reported.

For example, because all teachers talk to each other more about the students who have disabilities, a greater variety of alternatives have been developed for these students and their educational programs are more comprehensive. Services to the regular education students have changed to be more like special education services, making regular classrooms more tolerant of individual differences. Interestingly, at the Lead Teacher high school in one county, there has been an increase in the number of students referred to special education, while at the Lead Teacher elementary school there has been a decrease. The increase at the high school was attributed to an increased concern for and understanding of the students, a better understanding of special educational services, and the pressure for improved student outcomes. The decrease at the elementary school was attributed to the fact that regular classroom teachers were doing a better job with all students. This was attributed to the decision to group students by ability and to the focus on doing whatever works for each individual child. In general, in all Lead Teacher schools, the stage has been set for more of a consulting role for special education teachers.

C. Development and Foundation

N.C. Lead Teacher was inspired by the work of the Carnegie Forum on Education and the Economy (A Nation Prepared: Teachers for the 21st Century, 1986). The Carnegie report recommends a plan with the goal of creating "a system in which school districts can offer the pay, autonomy, and career opportunities necessary to attract to teaching highly qualified people who would otherwise take up other professional careers" (p. 55). The plan presented in the Carnegie report includes the following elements:

> Restructure the teaching force, and introduce a new category of Lead Teachers with the proven ability to provide active leadership in the redesign of the schools and in helping their colleagues to uphold high standards of learning and teaching (p. 55); and
>
> Teachers should be provided with the discretion and autonomy that are the hallmarks of professional work. . . Teachers should participate in the setting of goals for their school and be accountable for achieving agreed upon standards of performance. . . Districts should foster collegial styles of decisionmaking and teaching in schools in which "Lead Teachers" play a central role. (p.56).

These elements are important to the N.C. Lead Teacher program.

Though the current N.C. Lead Teacher project received its impetus from the Carnegie report (Carnegie Forum on Education and the Economy, A Nation Prepared: Teachers for the 21st Century, 1986), the ideas from which this concept developed have been evolving for a number of years. Three converging ideas or issues can be identified that form the basis for the Lead Teacher concept: (1) professionalization of teaching, (2) the need for participant involvement in change, and (3) the importance of culture in organizational behavior.

The call for teaching to obtain professional status is not new. Advocates for professionalization of teaching have argued that the typical bureaucratic structures inhibit teaching and guarantee only a minimal standard of performance (Schlechty, George, and Whitford, 1978). The conflict between a professional organizational structure and a bureaucratic organizational structure can be conceptualized as a conflict between the need for expertise and the need for discipline, and, as teachers become more professional in their orientation, conflict with existing bureaucratic administrative structures is inevitable (Hoy & Miskel, 1982). This conflict has been exacerbated by the fact that many recent reform efforts have called for improved outcomes to be created by increased specificity of requirements, increased testing, back-to-basics, and other bureaucratic procedures designed to "teacher-proof" the educational process. In contrast to these reform efforts, the N.C. Lead Teacher program advocates the enhancement of teaching as a profession. Rather than "teacher-proofing" the educational process, the program gives teachers increased authority and responsibility.

According to Corbett, Dawson, and Firestone (1984), the idea that it is important to involve those who will implement an innovation in the planning for that innovation has its roots in applied research on organizational behavior of the 1930s and 1940s (as described by Coch and French, 1948). With regard to school organization, teacher participation came to be viewed as a critical factor in school change after Berman and McLaughlin's Rand Corporation report of 1977. That report stated that teacher involvement enhanced local commitment and motivation and ensured that any change would be appropriate for the local setting. Based largely on literature of the 1970s, Corbett et al. identified three major underlying reasons for involving local participants in planning:

1. Participation increases people's commitment to spend time and effort implementing new practices and continuing them after initial incentives are withdrawn. This includes the development of psychological ownership.

2. Participation helps insure that people will acquire the knowledge and skills needed to change their behavior, and that they know the reasons that led to certain decisions.

3. Participation increases the probability that changes will be appropriate in a particular setting.

The recognition of the importance of participant involvement in the change process can also be related to the recognition of the importance of culture in change. Peters and Waterman (1982) popularized the idea that change is less a structured, bureaucratic, formal, or technical process and more a political or cultural one. Rossman, Corbett, and Firestone (1988) point out that there have been three perspectives on planned change that have evolved over the years: technical, political, and cultural. The technical perspective, with its emphasis on a rational process focuses on the bureaucratic aspects of change. The political perspective recognizes the special interests of various groups involved in the change process. The cultural perspective views change according to its impact on the norms, beliefs, and values shared by practitioners and the symbolic meanings they attach to efforts toward change.

Rossman et al. (1988) suggest that the well-documented failure of much in the way of school innovation over the past twenty years is rooted in a view of change as a technical or political process, rather than a cultural one. While ignoring cultural dynamics, most change efforts have focused solely on behavioral change and alterations in "discrete, observable, describable, and tangible actions" (p. 18). The fit between those behaviors and the normative core of a school's culture has not been attended to. This generally has been the case in North Carolina where most of the school reform movement of the 1980's can be viewed as emphasizing changes in the technical processes of education. Most of this reform effort has "dramatically added to the weight of rules and regulations . . . [that] have further prescribed how educators are to teach, what they are to teach, and when they are to teach it." (p. 4, Public School Forum of North Carolina, 1989a). The Lead Teacher program stands in contrast to this trend because it attempts to create fundamental changes in school culture by allowing great flexibility and placing authority for decision-making at the building level.

D. Key Principles Upon Which NC Lead Teacher is Based

A series of principles and ideas have guided the development of the Lead Teacher program (in part from Public School Forum of North Carolina, 1989b).

1. Complex problems rarely yield to simple solutions. Changing pervasive patterns of thinking and behaving requires time and careful planning.
2. Meaningful reform cannot occur in a top-down fashion. For reform to be successful participants must be actively involved in the change process and local culture must be taken into account.
3. No important change can occur without changes in the organizational structure. The organizational structure dictates the nature of relationships. Teachers cannot operate as professionals unless the organizational structure supports site-based management.
4. Flexibility in the use of resources and freedom from rules and regulations are the keys to significant reform. The constraints of existing authority gives schools little latitude for true change. Line item budgeting dictates how resources will be used and top-down rules and regulations inhibit innovation.
5. The price of empowerment is accountability. Teacher empowerment brings with it responsibility. Teachers are responsible for documenting that they are achieving results.
6. The bottom line is improved student performance. Outcome measures must address student performance. Goals and objectives must directly or indirectly relate to the enhancement of student performance. Student performance, however, is not limited to achievement test scores and may include more subjective areas such as self-esteem and attitudes.

II. NC LEAD TEACHER DESCRIPTION

The Public School Forum of N.C. was instrumental in the development of the N.C. Lead Teacher program. The Forum is a partnership of educational, business, and political leaders. Its purpose is to conduct research and provide policy options that will potentially improve the quality of schooling in N.C. The Forum is supported by foundation grants, corporate funding, and the General Assembly of N.C.

The Forum described the Lead Teacher project as follows:

> "participating schools would move decision-making authority to the building level and give the faculties and administrators in pilot schools unprecedented latitude over the use of resources, budgeting and time. Further, participating schools would employ lead teachers at a ratio of one lead teacher to every 12 classroom teachers, and the schools were to restructure around "teaching departments" or teams headed by a lead teacher" (Forum, 1988, p. 1).

While the term "Lead Teacher" does not describe a single program, the term is widely recognized to describe a school restructuring approach that has a number of specific features. Interestingly, Lead Teacher is often defined by what it is not. It is not an administrative or quasi-administrative structure, though a Lead Teacher may have administrative responsibilities. It is not a master teacher program, though a Lead Teacher typically will be a teacher with extensive experience who is highly respected by peers. It is not simply another step on a career ladder plan, though the Lead Teacher role may be incorporated into career ladder plans. Most importantly, Lead Teacher does not create a cadre of elite teachers but, instead, is a means of improving the effectiveness and commitment of all teachers (Devaney, 1987).

In North Carolina, Lead Teachers are, first and foremost, teachers who maintain a teaching load. The specific roles of Lead Teachers vary from building to building, because local faculties design the job descriptions for their Lead Teachers. Duties may include such activities as testing new students for appropriate class placement, organizing curriculum materials, serving as mentor, and serving as liaison between a team of teachers and the school's administrators. While Lead Teachers may serve as mentors or coaches, they do not participate in the formal evaluation of other teachers. As a restructuring approach designed to empower teachers, N.C. Lead Teacher was not designed with any specific student population in mind. In practice, it affects all staff members and all students. Lead Teacher has been employed in elementary, junior/middle, and high schools.

III. NC LEAD TEACHER IMPLEMENTATION

A. NC Lead Teacher in Action

Since the Lead Teacher program addresses process rather than content, it is not possible to describe precisely what Lead Teacher schools look like. The specific nature of Lead Teacher schools varies considerably from school to school. This is particularly true in terms of instruction, staffing, and the classroom environment. Lead Teacher schools may be set up like traditional schools, or teachers may choose to make major modifications in the way teaching and learning occur. In one Lead Teacher school all students, including first graders, may change classes a number of times during the day. In another Lead Teacher school, the number of students may vary considerably from class to class. In still another Lead Teacher school, teaching assistants may be shared equally by all classes, students may be grouped according to ability instead of grade level, and classes may be taught by "teams" of regular and special educators.

A visitor might not see any obvious differences between a Lead Teacher school and a traditional school. If there is an observable common factor in Lead Teacher schools, it is the presence of a common teacher work space and secretaries who work exclusively for teachers. A visitor who spent a day at a Lead Teacher school might observe a number of planning meetings among teachers. The visitor might also notice a collegiality in relationships among teachers and in the relationships between the teachers and the principal. Finally, the visitor might see evidence of faculty pride in the accomplishments of the school that indicates an ownership that has developed through participation in the management of the school.

B. Participant Roles

1. Students

The role of the student will not change significantly with implementation of the N.C. Lead Teacher program. The impact that the program has on students depends on the specific way the program is developed at the local school. The local autonomy that is an intrinsic part of the program means that each school will focus on different areas to enhance student outcomes. Early evidence from the schools that have participated in the pilot program suggests that the program can have a positive impact on many facets of a child's school experience. The schools have reported some evidence of improvements in student outcomes in the following areas: self-esteem, academic achievement, attitude toward school, satisfaction with school, attendance, peer relations, suspensions, discipline problems, and dropout rate. Related to student outcomes, a positive impact has also been reported on parents' satisfaction with the schools.

2. Teachers

Changes in the roles and responsibilities of teachers are the heart of the Lead Teacher program. These changes are described throughout this report.

3. Administrators

Teacher empowerment means considerable change in roles for principals and assistant principals. Because the Lead Teacher program changes organizational structures, the authority relationships between administrators and teachers are affected. The specific nature of the new administrative roles varies from school to school. The role of the principal at a Lead Teacher school is described in terms that vary from "leader among leaders" to "facilitator." One Superintendent emphasized that the role of the principal in a Lead Teacher school becomes both more important, because the principal must manage the continual process of change, and more difficult, because the principal must earn authority.

4. Parents/Community

N.C. Lead Teacher is not designed to have a direct impact on parents or the community. With any radical change, however, parent and community interest will be high. This high interest level creates a need for a public information effort to ensure that the public is correctly informed about the changes that are taking place. Political considerations must also be addressed. In North Carolina, the superintendents who brought the Lead Teacher program into their districts worked closely with their school boards to assure that they had the necessary political and community support.

C. Implementation Requirements

1. Planning

A year of planning is recommended by the program developers as a precursor to implementation. This planning year serves a dual purpose. First, it gives teachers the opportunity to learn about site-based management and to develop a plan for implementing the program before making a final commitment to adopt it. Second, if the decision is made to adopt the program, the planning year has provided time for making specific plans to be carried out during the first year of implementation. The developers recommend that much time during this planning year be devoted to addressing issues related to relationships. Teachers and principals need to explore the new working relationships that participatory management will bring. They also need training in group process and in conflict resolution. During this planning year, decisions are made about the specific way Lead Teacher teams will be organized. Typically, Lead Teacher schools use this planning time as an opportunity to modify significant aspects of the teaching and learning process, often planning radical new strategies to be used on a trial basis.

On-going school-based planning is an integral part of the Lead Teacher model. Lead Teachers are elected by teams of teachers that function as ongoing work groups. Work groups meet at least weekly throughout the year, and one of their chief functions is planning. In North Carolina, this planning has focused largely on change and innovation. The work groups are the primary unit at the school for both planning and implementing change.

2. Training

With the N.C. Lead Teacher program, the bulk of the training occurs during the year-long planning process prior to implementation. This training focuses chiefly on the changes in organizational and personal relationships that Lead Teacher will bring. Some of the training is conducted by consultants with knowledge in specific areas such as group process, conflict resolution, program evaluation, and accountability programs. Other training is conducted by the faculties themselves as they educate each other about the diverse components of their own schools.

The costs at the building or district level of preparing for implementation of Lead Teacher are relatively small. No additional staff are needed during the planning year. The main costs during that year would be for consultants to provide training. In North Carolina, each of the six schools that are implementing Lead Teacher receives an annual State allocation of $300 per faculty member for training. Annual training budgets for the schools range from $5,400 to $15,600. Ideally, this training money would be available during the planning year prior to implementation and would continue at least through the first two years of implementation.

In N.C., on-going training has been limited and has included statewide workshops sponsored by the Public School Forum. As Lead Teacher schools have become involved in the adoption of new instructional strategies, some training has been arranged by individual schools to develop new skills in specific areas. For example, teachers in one school have received additional training in cooperative learning.

3. Staffing

The most significant resource needed for implementation of the N.C. Lead Teacher program is extra teaching staff to provide Lead Teachers with release time from direct instruction responsibilities so that they can carry out Lead Teacher responsibilities. Generally, this release time is for half of each day. Though not an integral part of the program, discretionary funds have been used at all Lead Teacher schools to hire secretarial support for teachers. This clerical help is viewed as necessary to free all teachers for the additional professional demands that the Lead Teacher program makes on them. Because of its importance, clerical help should be viewed as a needed resource.

4. Facilities

No special facilities are needed for the Lead Teacher model. Lead Teacher schools in North Carolina, however, have created additional work space for teachers. Though not a part of the program per se, additional work space is a need that was identified as a priority by teachers at each of the schools. One or more work rooms are set aside in each school to be used as offices for Lead Teachers and as work areas for all teachers. Also in response to a need identified by teachers, most work areas have telephones.

5. Curriculum, Equipment, Materials, and Supplies

The N.C. Lead Teacher model has no set requirement for additional equipment, materials, or supplies. What is required is sufficient flexibility with money to allow teachers to purchase equipment and supplies as they identify a need. Significant changes in instructional procedures and methods are likely as a result of implementation of the Lead Teacher program. Though changes are not dictated by the program, changes can be expected. Freedom from rules and regulations, the discretionary use of funds, the increase in group planning, and the emphasis on student outcomes all tend to make instructional innovation likely. In North Carolina, innovations in instruction resulting from Lead Teacher include extensive changes in the way students are grouped, considerable variation in class size, increases in the use of computer assisted instruction, changes in the method of reading instruction, and the adoption of special instructional techniques such as cooperative learning.

6. Classroom Arrangement

Changes in classroom environment might occur as a result of Lead Teacher, but changes in this area are not inherent in the program.

7. School and District Organization

With its emphasis on teacher autonomy and site-based management, Lead Teacher has a major impact on organization at the building level. This impact is described throughout this report. Changes in organization at the district level are not an inherent part of the Lead Teacher program, but they would be expected to occur over time. Site-based management should mean a decrease in the need for direction from the district level. One outcome of the decrease in the need for direction might be a reduction in the number of district-level staff. Another impact might be a change in roles of district-level staff from providers of direction to providers of consultation. Because of the recency of Lead Teacher's development, significant changes at the district level have not yet occurred as a result of the program in North Carolina.

IV. MONITORING IMPLEMENTATION OF N.C. LEAD TEACHER

A. Students, Classroom, and Building-Level Outcomes

The N.C. Lead Teacher program requires accountability measures in two areas: student outcome and employee satisfaction. These two areas represent the "dual thrust of improving schools for students and for the people who work within them." (p. 3, Public School Forum of North Carolina, 1988b). Accountability is viewed primarily as a building-level issue. School-based teams have been established to develop accountability programs that are tailored to specific goals determined by each faculty. Though there is considerable variation from site to site, most of the school-based accountability programs include the following (Public School Forum of North Carolina, 1988b):

- Attitudinal surveys of students, teachers, and parents.
- Documentation of lead teacher activities.
- Documentation of staff development activities.
- Teacher attendance data.
- Student attendance data.
- Norm-referenced test data.
- Documentation of discipline referrals.
- Documentation of parental involvement.

Evaluation of Lead Teacher programs occurs chiefly through these accountability plans. At some schools, a small salary supplement is paid to all teachers contingent upon the achievement of certain accountability goals.

B. Overall Program Implementation

In North Carolina, monitoring is chiefly a function performed by the Public School Forum. The Forum has no direct authority over the pilot schools, but it provides public exposure for the results of the Lead Teacher program and thus provides a monitoring function. The Forum also supports the accountability programs in place at every Lead Teacher school by supplying consultative support. The most important monitoring comes at the district level from school boards and superintendents. The developers expect the program to continue only as long as positive outcomes are evident to these sources. The evidence of positive outcomes comes from the school-based accountability plans.

V. EVIDENCE OF NC LEAD TEACHER EFFECTIVENESS

Research on the effectiveness of the N.C. Lead Teacher model is limited at this time because the project is in its early stages. There is, however, some general research evidence that suggests that Lead Teacher programs will be effective. For example, Devaney (1987) reports on the findings of Little and Bird (1984) that in excellent public schools qualities of collegiality and experimentation are apparent. Four activities occurred in these excellent schools that did not occur in other schools:

- Teachers talked frequently about their work with students.
- Teachers observed each other teaching.
- Teachers worked together on the school's curriculum and lesson materials (researching, planning, designing, evaluating)).
- Teachers taught each other.

Since Lead Teacher incorporates these activities and encourages experimentation and collegiality, it is probable that schools will be improved.

The N.C. Lead Teacher project has established guidelines that ultimately should provide sufficient effectiveness data. To date, however, data are limited. The second interim report of the N.C. Lead Teacher project (Public School Forum of North Carolina, 1989b) reports on data collected from each of the original six schools. The results can be summarized under the following two categories:

Student Performance. According to the Forum report, each school showed gains or remained stable in end-of-year norm-referenced measures of academic achievement (primarily California Achievement Test and Scholastic Aptitude Test scores). Gains were more prevalent at the elementary level. Where criterion-referenced tests were employed, substantial gains were reported at both elementary and senior high levels. All schools reported improvement in grades and most schools reported a decrease in the number of student failures. At several schools, the number of students making the honor roll increased, as did performance on writing tests. "Moderate to exceptional" gains in attendance are reported at most schools. Attendance gains were greatest at the junior and senior high level where teacher-designed attendance programs were in place. At some sites, large increases were reported in student time-on-task. Interviews with staff at Lead Teacher schools in North Carolina corroborated the findings reported by the Forum. The overwhelming majority of interviewed teachers claimed that student performance had been improved as a result of changes that were implemented under the Lead Teacher program.

Employee Satisfaction. The Forum report presents results of qualitative measures of teacher satisfaction based on interviews and questionnaires. According to the report: "Teacher morale and work satisfaction have improved steadily throughout the first year of the project. Though there have been isolated pockets of discontent in some schools, it is unfocused and declining." (p. 3). The project is "strongly endorsed" by 80 to 90 percent of the teachers. The report provides anecdotal evidence of the positive impact on teachers. For example: "Teachers report that this reform has the capacity to 'revolutionize' the teaching profession. . . Several teachers have indicated that they will not retire as planned because of this project. . . Others indicate that they have decided not to seek employment in other districts offering higher salaries." (p. 3). The teachers, who were interviewed, were also largely in agreement that the Lead Teacher program had improved working conditions by increasing the control they have over their work environments.

Comments about the Lead Teacher program were chiefly positive at both the elementary and secondary levels, though there were more critical comments by secondary teachers. Some secondary teachers were clearly skeptical about the program, seeing Lead Teacher as a new form of departmentalization that is more rewarding for the Lead Teachers than for other members of the Lead Teacher teams. Comments by some secondary teachers indicated that they placed less value on the "whole child" approach, which Lead Teacher fosters, than did primary teachers. Teachers at all levels indicated that the Lead Teacher program could be adopted more easily in an elementary setting. On the whole, however, teachers indicated that the program had great potential value at both the primary and secondary levels.

VI. SOURCES OF ADDITIONAL INFORMATION

Additional information about the North Carolina Lead Teacher program is available from:

Public School Forum of North Carolina
400 Oberlin Road
Suite 220
Raleigh, NC 27605

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COMPREHENSIVE LOCAL SCHOOL

Developed by Wayne Sailor, Jacki Anderson, Ann Halvorsen, Kathy Doering, Jon Filler, & Lori Goetz

General Description: The Comprehensive Local School (CLS) is an organizational program that provides a structure for merging special and general education into a single system wherein students with disabilities are served in their neighborhood schools. The CLS is designed to maximize the motivation and educational opportunities that can exist for students with disabilities, including those with severe disabilities, when they are educated in fully integrated settings. The CLS promotes the notion that the least restrictive placement for students with disabilities includes the home, various stations throughout the community and general and special classrooms at the school. A five-phased program, CLS incorporates two central concepts: heterogeneous groupings and the community at large as the primary educational environment. The phases are mainstreaming (full-time general class placement; emphasis on social development; from about 2 to 6 years of age); integration (mainstream placement to maximum extent possible, with specialized instruction provided in other settings from about first through fifth grades); community intensive instruction (students with severe disabilities spend increasing amounts of time in community-based instruction; from about fifth through eighth grade); transition (emphasis on intensified community-based instruction with heavy emphasis on job training in integrated job sites; from about grade 9 through 12); and integrated work and community living (emphasis on community, job, and independent living skills; placement of program on or near community college campus; from about age 18 through young adulthood).

Target Population: The CLS is designed for students with severe disabilities from preschool through young adulthood.

Implementation Considerations: The CLS provides a framework around which individual schools and districts can build a comprehensive, integrated educational program for individuals with severe disabilities. It requires the unification of general and categorical programs at the local level, under an organizational structure that (1) facilitates the site administrator's (principal) responsibility for the educational programs of all students enrolled in the school and (2) ensures that students receive an appropriate education in the least restrictive environment. It is recommended that a Site Resource Management Team be established at the school building level to develop a site implementation plan and to identify, secure, and manage the resources required to implement the plan.

Program Effectiveness: A comprehensive study of the extent to which CLS achieves the intended outcomes of employment, community integration, mobility, and social contacts is still in the implementation stages. There is, however, a body of research that supports the individual components of the CLS program.

Costs: Specific costs associated with the implementation of CLS will vary from site to site and will depend on the extent to which a site is already involved in the integration of students with severe disabilities. Implementation costs may include training, creation of barrier free facilities, transportation for community-based instruction, and addition of staff to assure intense intervention simultaneously across various instructional settings.

COMPREHENSIVE LOCAL SCHOOL

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I. INTRODUCTION

The Comprehensive Local School (CLS) is a school organizational program that provides a general structure for merging special and general education into a single organizational system wherein students with disabilities are served at the local school site. CLS is based on the philosophy that all children, including those with severe disabilities, can receive educational services in their neighborhood school.

The CLS is designed to maximize the motivation and educational opportunities that can exist for students with disabilities when they are educated in a fully integrated setting. While the CLS program is based on the implementation of the "least restrictive environment" principle, it is not necessarily the same as proposing that all students be served for their primary placement in the regular classroom. Rather, the CLS promotes the notion that while the least restrictive placement might in fact be the regular classroom, it might also include a variety of other settings and service environments. In fact, community intensive instruction, or instructing students in the settings in which the need for their newly learned skills occurs naturally, is a major component of this program.

To our knowledge, no school or district is implementing the CLS program in its entirety. Districts we spoke with have begun by implementing a part of the program and plan to phase in other aspects of the CLS over time.

A. Purpose and Goals of CLS

The CLS program is designed to successfully integrate students with severe disabilities into local school settings. Its goal is to focus the role of education on providing for increased independence and improved quality of life for individuals with severe disabilities. Toward that end, the CLS uses an integrated, community intensive instructional approach to serve students with severe disabilities.

B. Contribution to Mainstreaming

The CLS program is a noncategorical approach to the provision of specialized services. It requires the unification of general and categorical programs at the local level, under an organizational structure that (1) places responsibility for the educational programs of all students enrolled in the school on the site administrator (or principal) and (2) ensures that students receive an appropriate education in the least restrictive environment.

The CLS advocates general education and special education teachers working together cooperatively to serve all students in the regular school setting. However, the extent to which children with disabilities can be served in the regular classroom depends upon the range of competencies of the teaching staff. Students with disabilities and individual needs that require a wide range of competencies may achieve instruction by specialized personnel outside the regular classroom, but within the school. Nevertheless, general education teachers share responsibility with these specialized staff for serving these students.

Additionally, the program extends the instructional context to the community. Rather than serving students primarily on the school campus, this program supports education being conducted in the community. Also, the program encompasses services from private preschools for young children and from the local community college for young adults.

C. Development and Foundation

The deinstitutionalization movement of the late 1960s and early 1970s underlies the CLS program. As efforts to move individuals with severe disabilities from institutions to small, community-based living environments were being made, a debate began about whether or not students with severe disabilities should be educated or treated.

By the mid to late 1970s, efforts to provide educational services to students with severe disabilities were evident. Educators were concerned not only with what to teach these students, but also with how to teach them. A difference of opinion was evident as some educators approached instruction on the basis of mental age, whereas others approached it on the basis of chronological age.

Before long (by the early 1980s), the focus had again shifted. This time the shift was from how to teach students with severe disabilities to where to teach them. Support for the provision of educational services in integrated educational settings was found in: (1) the mandates of P.L. 94-142; (2) efficacy studies that revealed that integrated education was clearly superior to isolated education; (3) the research and writings of Lou Brown, at the University of Wisconsin-Madison, promoting the education of students with severe disabilities in integrated settings; and (4) the view of the Assistant Secretary of the Office of Special Education and Rehabilitative Services that special and general educators should share responsibility for educating all students.

By the mid 1980s, the primary question continued to focus on where students with severe disabilities should be taught. However, educators now raised the issue as to whether an integrated setting was a more appropriate placement than regular classrooms or special classes at regular schools.

The program's developers, all of whom were researchers at the California Research Institute on Integration of Students with Severe Disabilities (CRI) at San Francisco State University from 1982 to 1987, examined the results of studies comparing integrated and segregated education programs. (These studies were conducted by CRI, the Minnesota Consortium for Severely Handicapped Learners, and others on the issue of the efficacy of integrated education.) On the basis of this review, the developers were convinced that a design or model was needed for maximizing the motivation and educational opportunities that a fully integrated educational opportunity can provide for students with disabilities. The CLS program was developed to meet that need.

The CLS program continues to evolve as knowledge and understanding of "best practices" for educating students with severe disabilities expands. One area of current debate and research is the amount of time that a child with severe disabilities should spend in a regular classroom at different grade levels. A second issue is the relation of teacher behavior to the impact that CLS has on students. That is, do teachers do things differently when a student with severe disabilities is introduced into a class? According to one developer, there is some evidence to suggest that all students benefit because the teacher is involved in structuring interactions and in presenting materials in more than one way (Sailor, 1990).

Many of the basic assertions of community intensive instruction, which is a critical function approach to instruction, can be traced to the work of Lou Brown at the University of Wisconsin. The use of this approach to teaching chronological age-appropriate skills is at the heart of community intensive instruction. Emphasis is placed upon instruction that will allow students with the most severe disabilities to function in an age-appropriate manner in a range of least restrictive environments. And, activities that are of immediate importance to the individual's successful functioning in different environments provide the focus for instruction. The importance of community intensive instruction has been studied by Horner, Dunlap & Koegel and others (e.g., Gee & Goetz, 1987 as cited by Sailor et al., 1989, p.5) who found "that students with severe disabilities are better able to generalize the usage of a newly learned skill when they acquire that skill in the various environments where the need for the skill occurs naturally."

Community intensive instruction is based on the theory of context relevance (Sailor, Goetz, Anderson, Hunt, & Gee, 1988, as cited in Sailor et al., 1989, p.105). According to this theory, skill acquisition is more likely to occur and be efficient if: (1) the skill is desirable or has immediate utility for the student, such that it increases functional competence in the targeted setting(s); (2) instruction occurs in a context of reciprocal social interactions; (3) the skill is acquired in the actual physical environments and under routines and conditions of associated cues and effects that will ultimately be required by the student; and (4) the skill is appropriate to the student's age and is sufficiently adaptable to facilitate movement into a variety of more integrated settings. The theory of context relevance dictates that in order to meet the goal of increased competence and participation across integrated community environments, educators must provide instruction directly in those community settings (Sailor et al., 1989, p.105). Although community intensive instruction is an integral component of educational services at all ages, the intensity and magnitude of this focus should increase as the chronological age of the student increases (Brown, Nisbet, Ford, Sweet, Shiraga, York, & Loomis, 1983, as cited by Sailor et al., 1989, p.105).

D. Key Principles Upon Which CLS is Based

The CLS program is based on the following key principles and beliefs (Sailor et al., 1989):

- All students, regardless of disability, deserve a free, appropriate education in the least restrictive environment.
- All students, regardless of disability, should be educated in the local school that he or she would attend if he or she were not attending private school or requiring special education services.
- Students with disabilities can benefit socially and academically from sharing a school environment with general education students.
- The proportion of students with disabilities at the school site should be equal to the proportion in the district as a whole.
- A strong site-based resource coordination and management system, that should be directed by the principal, must be provided.
- Cooperative learning and peer instruction should be used in the regular classrooms to facilitate interactive experiences between students with severe disabilities and those who are not disabled.
- Students should be grouped heterogeneously and they should receive noncategorical, specialized services.
- The community at large should be the primary educational environment, with the school serving as one component in the general fabric and matrix of the community.
- Preparation for community living for students with severe disabilities should occur in the environment in which students will be required to apply learned skills and behaviors.

II. CLS DESCRIPTION

CLS requires a revised school district organizational structure in which general and special education are unified at the local school level. Administration and responsibility for the program rests in the hands of the local building administrator. The central special education unit serves as a resource to the building administrator in delivering services in the local school. Similarly, general education teachers share responsibility with special educators for the educational program of each child with disabilities.

There are two concepts that are central to the CLS program: (a) heterogeneous groupings and the (b) concept that the community at large is the primary educational environment. By virtue of the first concept, heterogeneous grouping, students are primarily educated in groupings based on their proximity to their chronological-age peer group (e.g., in their neighborhood, in their community, and near their families) rather than on groupings based on disability types. This concept has implications for teacher training because teachers must have the skills necessary to assist in meeting the special needs of students with a variety of disabilities. Also, teachers should have available the specialized resource personnel required to meet these needs and should be competent in using these personnel.

The second concept, the community as a primary educational environment, means that the student has a variety of classrooms, i.e., the home, various stations throughout the community, and general and special classrooms at the school. The community programming concept, which has both staffing and transportation implications, includes several best practices related to integration (Sailor et al., 1989, p.104).

- The primary focus is on decreasing the social, emotional, and academic differences between students with severe disabilities and their nondisabled peers by keeping activities, settings, and instructional materials age-appropriate, and by keeping a natural ratio of persons with disabilities to those without disabilities in all instructional contexts.
- Instruction takes place across many school and surrounding community environments and involves a variety of adults and peers.
- Structured, sustained interactions among age peers who have and do not have disabilities are ensured by teaching staff.
- Instructional technology and adaptations are used such that each student participates, at least partially, in a variety of age-appropriate activities in integrated domestic, recreational, school, and vocational settings.

- A functional life skills curriculum is maintained in which all educational intervention is measured against the degree to which the curriculum enhances the ability of a student to perform as independently as possible in current and subsequent natural environments (Brown, Nietupski, & Hamre-Nietupski, 1976, as cited by Sailor et al., 1989).

- An instructional program is employed wherein teaching occurs as much as possible in the context in which the taught skills will ultimately be performed, in order to capitalize on naturally occurring stimuli, routines, and motivational factors.

- An integrated therapy program is used in which teachers, parents, and therapists work together to determine basic skill needs and provide appropriate intervention in natural contexts.

- A commitment to the likelihood of a nonsheltered future that stresses work and maximally independent living circumstances is maintained.

CLS requires that an informal multi-environmental assessment be conducted to determine what skills are required of individuals who do not have disabilities in each environment and relate them to the skills of same-age peers with severe disabilities. For example, what skills are necessary for upper elementary-aged students to have positive playground experiences? What skills are necessary for working in food preparation? At the early stages of the educational process, the natural environment for social and communicative development is the regular classroom and other school environments (e.g., cafeteria, library, and playgrounds). As students grow older, more educational time is spent in other school environments and in various (nonschool) community environments, with a strong emphasis on mobility, domestic, and recreational skills appropriate to the students' ages. Vocational development later becomes important, and the students spend increasing amounts of time in a variety of work/training environments. Thus, community intensive instruction implies a progression of the dimension of integration, as the logical outgrowth of the process is postschool placement in an integrated work setting and in an independent, or semi-independent, integrated living arrangement.

The CLS is a five-phased service delivery program that incorporates these two concepts and encompasses all parts of an individual's life, from early childhood to adulthood. These phases are mainstreaming, integration, community intensive instruction, transition, and integrated work and community living. Each phase of the program corresponds to an approximate age/grade grouping and the program manifests itself differently within each phase. Combined, the five phases of the CLS program constitute a total framework for educational program organization. It is important to note that the phases in this program have been primarily designed for students with extensive service needs. Each of these five phases is described below.

A. Phase I: Mainstreaming

This phase typically begins as infant intervention programs taper off, and it continues through kindergarten, serving children of approximately 18-24 months through 5-6 years of age. It is characterized by (1) the same-room placement of children with all types and ranges of disability together with their nondisabled age mates, and (2) a program that focuses on the development of the social skills (which includes social behaviors for group settings and personal interaction skills).

Two factors are critical to effective mainstreaming in the provision of early childhood services (Sailor et al., 1989, p.43). First, staff should have a program plan that specifies that amount, degree, and nature of the contact that each student has with nondisabled peers. This plan should be in the form of specific goals and objectives, and it should be developed with parent participation. Second, interaction between students should be structured to occur through mutual learning situations where joint reinforcing experiences accrue to participants with and without disabilities.

The Mainstreaming Phase is viewed as a time for preparing students for the integrated environment in Phase II of the CLS, as well as providing them instruction in successful adaptation to current environments. Therefore, Phase I programs emphasize mainstreamed kindergarten, preschool, and daycare programs. It is important to note that the program does not require the development of new service delivery systems, rather it requires that the ratios of students with disabilities to students who are not disabled be adjusted within existing systems to reflect appropriate levels typically realized in mainstream settings.

B. Phase II: Integration

This phase encompasses the early elementary school years (age equivalency from about first through fifth grade). During the integration phase, frequent and sustained interactions between children with disabilities and their nondisabled age peers is emphasized. It is expected that each student, with or without disabilities, will participate as a valued member of a sustained social network within his or her home community. However, given the academic orientation of the curriculum beginning in first grade, full-time mainstreaming is not always an appropriate placement for this phase. Thus, the placement emphasis in this phase shifts from that of total mainstreaming to that of "integration." In other words, the task is to create a school organization that maximizes mainstreaming while providing an integrated educational program.

In a general sense, integration at this phase has three primary characteristics (Sailor et al., 1989, p.58):

1) Instruction of students with severe disabilities occurs across all school and campus sub-environments that are regularly accessed by nondisabled age peers.

2) Students with severe disabilities participate consistently on an individualized basis in academic and nonacademic school settings, as delineated in each student's individualized educational plan (IEP).

3) Consistent opportunities for interaction with nondisabled students are facilitated through structured interventions that are intended to promote spontaneous, reciprocal interaction among students across school and extracurricular activities and environments.

C. Phase III: Community Intensive Instruction

Students in grades five through eight, or the intermediate- and middle-school years, are served in Phase III. In this phase, students with less severe disabilities spend more time in school in order to stay consistent with their cognitive abilities, the requirements of their IEPs, and the regular and remedial academic programs--whereas, students with severe disabilities will spend more time in community-based instruction.

The amount of time that students with severe disabilities receive instruction in integrated community environments increases as the time in classroom decreases, and the surrounding community increases in importance for the educational service delivery process. Vocational instruction also begins during this phase (at about age 12), with job sites located both on the school campus and in the community.

This phase marks a conceptual shift from the development of socialization and communication skills to the application of those skills in the broader context of community living. All students with severe disabilities, including those with the most severe disabilities are included in a community intensive program under the CLS program.

Educational intervention in this phase focuses on fostering successful participation in a variety of integrated community, recreational, vocational, and domestic environments. The community programming aspect of CLS is based on the theory of context relevance and has the critical components of (Sailor et al., 1989, p.104):

- Having a primary focus on decreasing differences between students with severe disabilities and nondisabled peers by keeping activities, settings, and instructional materials age-appropriate, and by keeping a natural ratio of disabled to nondisabled persons in all instructional contexts.
- Imparting instruction across many environments.
- Encouraging structured, sustained interactions among disabled and nondisabled peers.
- Utilizing instructional technology and adaptation to ensure participation or partial participation of all students.
- Maintaining a functional life curriculum focus.
- Teaching as much as possible in the context in which the taught skills will ultimately be performed.
- Teaming with other professionals and family members to provide appropriate programs.
- Maintaining a commitment to a future that maximizes independent living.

Though community intensive instruction is the dominant mode of instruction in Phase III, some students (especially those with less severe disabilities) will spend more time in school in order to stay consistent with their cognitive abilities and IEPs, and to take advantage of available regular remedial and academic programs.

D. Phase IV: Transition

This phase corresponds to the secondary program (equivalency of ninth through twelfth grades). The program emphasis shifts even more dramatically to intensified community-based instruction with a heavy focus on job training in integrated job sites (Sailor et al., 1989, p.11). Preparation for adulthood, postschool living, and the world of work receives the most attention from the curriculum used in the phase of transition. Interagency transition teams and individual transition plans are developed during this phase (at around age 14) to assure successful transition from school to work and adult status.

According to Sailor et al. (1989, p.157), the transition phase in the life of a student with severe disabilities is the most sweeping and significant of the five phases in the CLS program. It is judged so primarily because of the changes that transition implies for the student's entire family and social support network, though changes in the student's skills and routines are also contributing factors. From the perspective of the educator, the phase of transition is the test of all the education that has preceded it. If mainstreaming and integrated instructional efforts have been applied in a community intensive context, then preparing a student to graduate on time is simply the next link in the educational chain. From the perspective of the postschool service provider, the transition phase is a trial period to observe and know a prospective client before assuming responsibility for his/her placement and subsequent services.

It is suggested that this phase be managed by a "transition specialist", i.e., an individual who has an extensive training background and experience in special education, vocational rehabilitation, and rehabilitation counseling. In the absence of a transition specialist, the responsibilities for site management generally fall with the secondary special education teacher. The phase of transition has planning, preparation, placement, and follow-up as its major components. The formal planning process should begin with the first scheduled IEP that occurs following the student's fourteenth birthday. This IEP is designated as an Individual Transition Plan (ITP), which is the start of the process of identifying the support needed to maintain the student in the community and on a job (Pumpian, West, & Shepard, 1988, as cited by Sailor et al., 1989). Additionally, a survey of the immediate community in which the young adult will live is conducted to identify the likely options for competitive supported employment, recreation, community resources, and place of residence.

E. Phase V: Integrated Work and Community Living

This final phase begins at approximately ages 17-18 and continues into young adulthood. As the high school campus tends to become an increasingly inappropriate environment for this student age group, the community college campus takes on prominence as a setting from which to expand into community job and living skill training sites. Supported employment and training for independent living skills becomes prominent curricular issues. The purpose of this phase is to provide support to enable persons with disabilities to enjoy ongoing, paid integrated work and normalized community living as a postschool adult (Sailor et al., 1989, p.224).

While elementary and secondary educational systems will not assume total responsibility for implementation of this phase, they do have a stake in the development of a postschool support system that will enable students to apply their learned skills and behaviors. A client's support system may include several different state-level agencies (e.g., vocational rehabilitation, developmental disabilities, and social services). Consequently, the CLS program is concerned with the three principal support systems and their respective agencies that are critical at this stage: the vocational service system, the community services system, and the domestic living system.

Under the CLS program, an integrated workplace, with the sustained interaction that it provides with nondisabled peers, is essential to enable individuals with disabilities to be more productive and gives them the highest quality of life. Hence, the policy question that underlies the zero exclusion philosophy of the CLS program is: "How do we support the regular workplace in order to enable it to receive workers who are disabled?" (Sailor et al., 1989, p.200).

F. Definition of Critical Terms

The following terms, as used in the CLS program, are critical to understanding the CLS program: a local school, a comprehensive local school, integration, mainstreaming, community intensive instruction, and principal of natural proportion.

A **local school** is the school that students would otherwise attend if they were neither attending private schools nor requiring special education services.

A **"comprehensive" local school** is a local school that can meet the educational service needs of all of its prospective students, regardless of their individual characteristics and regardless of how diverse, extensive, or costly their special service requirements (Sailor et al., 1989, p.3).

Integration for students with severe disabilities is defined as a program that:

- Is located at the school that the student would attend if no special services were needed, or at the comprehensive local school of the same-age grouping nearest to the student's residence, with transportation not in excess of 30 minutes one direction.
- Locates the student's specialized instructional unit as the classroom the student would attend if no specialized services were required.
- Maximizes acceptance of all students as viable members of the school by respecting the individual abilities of each student through examining participation in all organized school activities such as social and sporting events, assemblies, ceremonies, etc.
- Encourages, develops, and sustains interactions among students with and without special services, particularly utilizing such vehicles as peer tutorials and special friendships to achieve the end.
- Does not exceed the natural proportion of students with disabilities at any school site in the district at large, usually holding the percentage of students with extensive needs at the site to about 1% of the school population.
- Facilitates the student's instruction in a wide range of school and community environments (where appropriate by age), utilizing a variety of instructional personnel to increase the student's competence in each environment.

Mainstreaming means that students who are disabled are served full time in the same room with students who are not disabled. Thus, an integrated placement ranges from partial mainstreaming with a high degree of social contact with non-disabled students to full mainstreaming.

Community intensive instruction focuses upon activities that are of immediate importance to the individual's successful functioning in different environments. Inclusion of the community intensive instructional component in the CLS program guarantees that students will participate and learn within the community as a whole.

Adherence to the **principle of natural proportion** means that the number of students with severe disabilities placed in an integrated school or work setting will not exceed that which you should expect to find the community at large, which is about 1% of the school population.

III. CLS IMPLEMENTATION

A. CLS in Action

A Comprehensive Local School will look different each time it is implemented. The particular services offered within a school will vary depending on the implementation plan developed by the school staff. For example, one of the services that may be offered at the local school is the availability of a specialized instructional unit rather than a"special class." A specialized unit allows for some permeability in membership or placement and enables multi-environmental instruction that has the flexibility to address a person's special education service needs at different stages of the education years, as opposed to the instruction that is determined on a classroom basis in special classes.

Following is a description of how a district CLS program might look at each phase of implementation. The description is a compilation of observations from six different school districts.

1. Phase I: Mainstreaming

The preschool classroom contains 40 children, 10 of whom have severe disabilities. Although the principle of natural proportion has not been adhered to in this setting, the district is moving toward that goal and plans to disperse the students with disabilities from this centralized integrated setting to their neighborhood schools over the next few years. The classroom is large and organized into a variety of learning/activity centers--blocks, art, dress-up, books, games. As students arrive in the morning they choose the center that they visit for the first hour. Seven adults circulate among the children--two

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preschool teachers, two special education teachers, two teacher aides, and one health care aide. Periodically, the health care aide conducts a suctioning procedure for one of the three students who require it, removing them temporarily from the activity they are engaged in but not removing them from the view of the other children. The other children, who were initially curious about the suctioning procedure, no longer seem to notice and take it in stride.

One student with severe disabilities is pulled out into a separate room to work one-on-one with a special education teacher. This student's disabilities include a high level of distractibility and the inability to focus on a task for more than a few seconds. The two special education teachers alternate work time with this student. Their goal is to increase the student's time on task and his language skills to a level where he can gradually be integrated into most classroom activities.

Following free play, the students gather for group time. Teachers and students sit together in a large circle. Today the group activities involves movement to music and all participate. With the exception of a few students with visible physical and medical disabilities, it is difficult to discern who the students with disabilities are in this classroom.

After group time comes small group activities. Teachers and aides work with small (about 8 students per group) groups of students. In one group the teacher is having a difficult time involving one student who has no language skills. The other children try to interact with this student when the teacher instructs them to do so, but they do not receive much reinforcement in the form of response. This teacher is in the process of learning new skills that will enable her to work more effectively with students who have severe disabilities.

2. Phase II: Integration

Eight elementary students with severe disabilities, who have previously been placed in a special education program located in the district's special education center, have been integrated into general education classes located throughout the district. In an effort to maintain the natural proportion of students with disabilities to those without disabilities, the students have been placed in four different schools. All but one of the students have been placed in their neighborhood school. The neighborhood school for one students was not receptive to his placement and so he was placed in another school. Staff, students, and parents at the school that was not receptive are receiving awareness training this year. The Integration Task Force (the name for this district's Site Resource Management Team) is developing a plan for providing awareness and specific skill training to all schools in the district as part of their overall plan for integration.

The special education teacher and teacher assistant travel among the schools, providing direct and indirect (consultation) services. They assist the general education teachers in planning for instruction, accommodating special needs, and identifying opportunities for increased interactions with students who do not have disabilities. Additionally, they provide direct instruction to students. Each spends from one to four hours per day in a school. Some time is spent with the student in the general education classroom and some time is spent one-on-one in an out of class setting, such as the library. Additionally, assistance is provided at two of the schools in the form of parent volunteers. In both instances, the parents of the students with disabilities volunteer in their children's classrooms one to two days each week.

3. Phase III: Community Intensive Instruction

Students with severe disabilities in the middle school spend the majority of the week in community based activities. Two days each week are spent in job exploration activities. The special education teacher has established job training sites in a variety of local businesses most of which are located at or near the school. Students spend from four to six weeks in each job setting. This provides the students with the opportunity to experience different types of jobs and helps the students and the teachers determine student interest, skill, and job preference. Job sites include food preparation, maintenance, landscaping, assembly, and clerical. No more than two students are placed at each site at the same time. The special education teacher, teacher aide, or university student teacher accompanies students "on the job." Although most of the sites are located within walking or short car ride distance from the school, one site is located at some distance away. To get to the site, students must access public transportation, which in this community is a city bus. In addition to receiving job training and experience, students are learning how to get around their community.

Students also receive academic instruction, socialization, domestic and self care instruction, and community access instruction, e.g., shopping and recreation. Academic instruction occurs in a variety of locations. Each student is placed in a general education homeroom. Students attend general education classes and receive special education services specific to their individual needs. Domestic and self care instruction occurs within the special education program. Students participate in extracurricular activities at the school--going to dances, sports events, assemblies, and club meetings. This teacher has established a special friends program for the students with severe disabilities. Through this program students without disabilities have been recruited as help mates for same age/gender students with disabilities. The relationships that have developed extend beyond the academic school day into extracurricular activities.

4. Phase IV: Transition

The Transition Coordinator spends each day "on the job" with students who are receiving specific job training. For example, one student is employed at a local drugstore. Her responsibilities include stocking shelves and keeping merchandise clean and presentable. The Transition Coordinator provides on the job training and supervision during the initial placement, gradually phasing out direct support and transferring supervision to the store management. Two other students have been placed in the food preparation section of a local university cafeteria. The students receive job coaching from a special education teacher aide who assists and supports them with general and specific responsibilities (e.g., punching in, making sure their uniform is on properly, and how to thoroughly wash spinach), as well as assisting them in personal interactions with other employees.

When students are not at their job sites, they are engaged in other types of transition activities. Domestic instruction is provided in apartments or homes near the school. Owners of local apartments and homes have been recruited as volunteers whereby they provide their homes as domestic training sites. As part of their domestic instruction and in exchange for the use of these homes, the students clean and run shopping errands for the owners. Community access instruction is infused among all of these activities. For example, transportation access is necessary for some shopping, and making change and managing money are necessary for shopping, transportation, and some recreation activities.

When students are not engaged in activities away from the school campus, they are attending general education classes and extracurricular activities. One high school teacher has established a school club for the students in her special education program and for friends of her students. The focus of the club is community service with this year's project being the establishment of a school-wide aluminum can recyclying program.

5. Phase V: Integrated Work and Community Living

The postsecondary aged students gather each day for "class" in an apartment located near the local community college. The apartment, which is paid for with school district funds, provides the primary setting for the instructional day. Students spend their day developing independent living skills by caring for the apartment (cleaning, cooking, and caring for houseplants), shopping, accessing community transportation, and attending classes at the community college. Academic instruction is primarily provided through the community college program. Students take courses in word processing, dance, physical education, culinary arts, and visual arts. The special education teacher and teacher aide accompany some students to their classes while others attend on their own. Each student's schedule is different, which poses a challenge to the special education teacher and her aide. The community college provides aides in some classes. These aides are funded through the college's office of assistance to students with special needs.

Some of the students work at jobs on the college campus and others work at community businesses (one works at a video store and another works at a sports store assisting with custom imprinting of products). Leisure activities include use of the campus cafeteria and pool, as well as use of a neighborhood park, the local bowling alley, and movie theaters.

B. Participant Roles

1. Students

The role of special education students (including those with severe disabilities) is to participate and receive most, if not all, of their academic and nonacademic education in integrated school and community settings. Through this process, administrators and instructional staff provide structured interventions that are intended to facilitate and promote spontaneous, reciprocal interaction among special education students and their nondisabled peers, as well as with other members of the community. Also, students will have many opportunities for informal unstructured interactions in daily extracurricular, social, and leisure activities, e.g., on the playground and in the hallways and cafeteria. It is important that all students are prepared for these interactions, and that the general education students accept their disabled peers and be sensitive to their special needs.

2. Teachers

The roles of both special and general education teachers will be affected by the implementation of the CLS program. Both groups of teachers must be active participants in planning and implementing instructional programs for students with and without disabilities. According to the program's developers, changes in the roles and responsibilities of teachers will result from (a) the move from segregated, classroom-based special education service delivery to integrated classroom and community intensive instruction that is provided to heterogeneously grouped students, and (b) the need to develop curriculum and instructional methods that will facilitate integrated classroom and community intensive instruction.

General education teachers will need to understand an accept the concept and practice of integration. They will need to: (a) possess the skills and energy necessary to meet the needs of students with a variety of disabilities, on an ongoing basis throughout the instructional day; (b) know how to access resource personnel, and (c) use cooperative learning and peer instructional strategies so as to effectively assimilate students with severe disabilities into their classes. This latter skill is considered by the developers to be essential for the successful implementation of the CLS. General education teachers may require specific training in serving students with disabilities.

Special education teachers will feel the greatest impact as a result of CLS implementation. Their role changes from one of providing direct instruction to students to one of managing a comprehensive instructional program. This change may be uncomfortable and overwhelming at first and requires special education teachers to be more "generic" in terms of providing specialized support services to a wider range of students with varying disabilities. Teachers with the more specialized skills required to assist in serving students with more severe disabilities (e.g., those who have physical disabilities or have dual sensory impairments) become resource personnel who serve a number of schools or districts on a consulting basis.

In addition to the design and implementation of individualized educational programs, the special education teacher must be able to: (a) communicate effectively in order to provide information and training to nondisabled students and adults, manage the performance of others, resolve conflicts, and serve as a public relations person; (b) identify potential resources, negotiate for access, and effectively utilize/manage the resources; (c) establish reasonable expectations for performance; (d) adapt instruction to a variety of contexts; (e) assist classroom teachers in adapting relevant curriculum; (f) communicate with, and assist as necessary, parents of students with severe disabilities; (g) develop a working knowledge of vocational issues and environments; (h) manage the overall operation of an integrated community intensive instructional program, including the training of teaching assistants to independently implement community intensive instruction; and (i) creatively schedule and organize programs and activities to maximize individualized community intensive instruction.

The role of paraprofessional teaching assistants changes for community intensive instruction. For example, they may spend their day assisting students with transportation access activities, job training, and other community access activities. Paraprofessionals need to understand and accept the overall philosophy and principal components of an integrated, community intensive program.

3. Administrators

The role of administrators in supporting the CLS program is critical to its successful implementation. The site-based administrative manager (e.g., principal) must be willing to acknowledge and accept responsibility for the education of all students at his/her site, including those with the most severe disabilities. According to the developers (Sailor et al., 1989; Sailor, 1991), considerable school reorganization and, possibly, school restructuring is required to initiate community intensive instruction. At the district administrative level, a plan must be developed to ensure that policies and/or procedural guidelines are in place and appropriate safeguards are established to avoid or minimize potential risks to students and protect against liability for any damage to community instructional sites or harm to students or other persons in these settings. Transportation will be required to provide access for students into the community. Additionally, budgeting must support the funding associated with having students become independent and competent members of their own communities (e.g., utilizing public transportation and recreational facilities, buying items in a grocery store, and using the laundromat). The district/school plan must also address such staffing issues as obtaining properly certified teachers, ensuring low pupil/staff ratios, adhering to the principle of natural proportion, and providing adequate staff training.

A final administrative issue to be addressed in preparing to implement community intensive instruction is the process of acquiring and developing community sites for instructional purposes. Guidelines must be developed for site selection, negotiation, site development, and ongoing management at the instructional setting.

Interviews with principals involved with CLS implementation revealed that they view their role in implementation primarily as supporters and promoters of change. These principals reported that since CLS implementation they spend more of their time planning, meeting with teachers and parents, problem-solving, conducting in-service training, and serving as a member of their school's Site Resource Management Team (see pg. 26 for full description of this Team).

4. Parents/Community

As with the implementation of any new educational program, parents of all students should be informed about the program that will be implemented, the reason for implementation, and the intended outcomes. The CLS program will require that parents of students with disabilities, parents of nondisabled students, nondisabled students, and the community be made aware of the CLS program and what it will entail prior to implementation. Parents of students with severe disabilities must be supportive of the placement of their children in general education classrooms and community-based instructional programs. Many parents will be asked to assist in assessing their child's needs and working on skills with their child at home, as well as serving as classroom volunteers, when possible, and as members of the Site Resource Management Team (see page 26 for full description of this Team). As these students move through the five phases of the CLS program, attention needs to be given to the impact of each phase on the families--providing support, information, and guidance when necessary.

A certain degree of public information and relations will be necessary when establishing sites for community instruction. It will be necessary to engage the community in discussions regarding the provision of integrated, after school activities and events. Members from the community should be included on the Site Resource Management Team. Finally, as this program promotes independent living and integrated work experiences, the community must be helped to reflect these beliefs in all aspects of society.

C. Implementation Requirements

1. Planning

The CLS is a program that advocates the merging of special and general education into a single organizational system. Thus, initial changes must take place at the district level with participation by staff and community. Once a decision is made to move toward a CLS program, comprehensive assessments of the current system must be undertaken and a decision must be made as to whether or not the CLS program is to be introduced districtwide, or phased into the district over a period of several years (e.g., start with selected schools, and/or with selected classes within schools). Existing facilities and resources need to be examined to determine what changes, if any, will be needed prior to implementation. For example, schools must be barrier free for all students who will be in attendance.

Sailor et al. (1989, pp. 59-91) have identified a number of planning-related considerations or steps that lead to the successful integration of students with disabilities (especially those with severe disabilities). These considerations are summarized below.

- **Set the Stage with Districtwide Preplanning**

  Districtwide planning and policy formulation is critical to the logistics of moving students with severe disabilities from segregated facilities and centers to age appropriate regular schools.

- **Develop Site Specific Implementation Plans and Integration Teams**

  Because proximity or physical integration does not guarantee interaction, a site implementation plan is needed to assure that specific interventions and disability awareness programs are provided to increase the rates of positive interactions between students with and without disabilities.

- **Create Opportunities for Interaction**

  Strategies for fostering positive interaction include: teacher programming behavior that demonstrates respect for students' strengths, dignity, and achievement; integrating all teachers into the school environment where they are all seen as participating fully in the day-to-day operations is critical to success of integration; scheduling opportunities for integration as part of the regular days' activities; and maintaining a flow of "integrated-related" information to general education teachers and students (e.g., slide shows, newspaper articles, and classroom visitation).

- **Facilitate Interactions Between Students with Disabilities and their Peers Who are not Disabled**

  Effective vehicles for interaction include adaptive activities, systematic instruction prior to the activity, age-appropriate materials that encourage joint participation, positive peer tutoring programs, special friends programs, and after school structured experiences.

- **Provide Social Skills Instruction**

  The effectiveness of the various considerations and strategies for promoting and enhancing integration will be minimized (either individually or as a whole) unless students with severe disabilities receive systematic instruction in social skills across activities and environments.

It should be kept in mind that this list is not all-inclusive but rather represents strategies that have been found in the literature to support integration.

A Site Resource Management Team (SRMT) must be established at the school building level to assist with initial and ongoing planning and resource identification and management. The SRMT is responsible for developing a School Site Implementation Plan and managing the resources required to implement the plan. The purpose of this team is to develop a coordinated plan for integrated work and community living for each student.

Membership on the SRMT and the number of members desired should be determined on an individual site basis; e.g., the number of persons on established teams has ranged from 6 to 18 persons, and has included general education teachers, special education teachers, principals, media specialists, other building specialists, parents of children who are disabled, and parents of children who are not nondisabled. Specific issues that will need to be addressed include scheduling time for the involved teachers to plan together, identifying the types and amount of training that will be needed, and soliciting voluntary participation of general and special education teachers.

Ongoing planning is critical to the success of the CLS, especially during the first 3-5 years of implementation. This planning includes monitoring the program, identifying problems and program needs, and revising or amending the LEA's Integrated Action Plan and the School Site Implementation Plan accordingly. These plans can become evaluation tools that track program progress.

2. Training

Two types of training are necessary: (a) training about the program's purposes, underlying principles, and procedures; and (b) training in the skills necessary to carry out the program phases. First, in-service training will be required for administrators and instructional staff (including general education as well as special education teachers, teaching aides, and ancillary support staff) in the rationale for outcomes of integration and community-based education. Training is also necessary to address concerns that typically accompany any major changes in curriculum or service delivery regarding preservation of the quality and quantity of educational services. Personnel at visited implementation sites reported that at the outset general and special education teachers are most concerned about: who will be responsible for the students, who will be held accountable for student growth and progress, and how long support for the program will last.

In addition to providing training to affected personnel and parents, awareness training should be provided for the general education students at the schools where students with severe disabilities will be integrated. Awareness training can be provided to students in their general education classes by a special education teacher and should include opportunities for students to ask questions.

Under the CLS program, general education teachers share responsibility with the specialized support staff for special education students. To fulfill this responsibility effectively, general education teachers will need additional training in the education of students with disabilities. Over time, general education teachers must become, to some degree, special education teachers in order to participate effectively in the education of children with severe disabilities. On the other hand, special education teachers must become more "generic" in the sense of providing specialized support services to a wider range of students with varying disabilities. Those teachers who have the more specialized skills required to serve students with certain types of disabilities (e.g., those with visual impairments) become resource personnel and assist on a consulting basis. The CLS also encourages additional training in working with students with disabilities for all the affected constituencies (i.e., students, parents, principals, teachers, aides, and other service providers).

The developers of CLS recommend horizontal or peer-to-peer contact as one successful training strategy (Sailor et al., 1989, pp. 63-64). Under this approach, principals provide training to principals, parents to parents, teachers to teachers, and general education students to each other. General education students, teachers, an administrators who have worked with integrated programs can provide valuable information and assurances to their peers.

Release time is required for providing in-service training at the district and building levels. The developers of CLS can identify trainers. External groups (e.g., the California State Education Agency and the Association for Persons with Severe Handicaps) can also assist in providing in-service training and planning. The costs associated with this initial training are dependent on who provides the training. A minimum of one day of initial training is required. Depending on the knowledge and expertise of participants, a maximum of 2 days of initial training will be needed. It is recommended that the initial training be provided in the summer prior to fall implementation, followed by periodic training during the year, and another day of summer training at the end of the first year. The amount and type of training to be provided will need to be determined by each individual site based on the site's needs.

In-service training should be provided each year to ensure that new knowledge is infused into the system. In-service training objectives should include the following:

- Development of a commitment to the concept of equal access to learning for all students;
- Identification of new roles for special and general educators as instructional leaders for all students;
- Development of plans to implement integrated programs in home schools;
- Increasing knowledge of effective practices, models and resources for implementing the integration of students with mild to severe disabilities into their home schools;
- Identification of specific strategies to promote a school climate which values acceptance of individual differences, sets high expectations for behavior and achievement, and encourages personal growth and satisfaction for students and staff alike;
- Identification of specific strategies for team-building and developing collaboration between general and special educators and parents to ensure that all students meet their educational goals and objectives within the least restrictive environment;
- Identification of curricular and instructional adaptations for the delivery of effective programs for all students;
- Identification of strategies specific to the development of their school site plan for restructuring special and general education service delivery to provide quality education for all children;
- Increasing knowledge of systems change and strategies for facilitating personal and organizational growth; and
- Increasing commitment and identification of strategies to develop schools and classrooms with a sense of community, a belief that everyone belongs, is welcomed and has gifts and talents to offer.

Additionally, as new problems arise, there will be a need for training staff in how to resolve them. Developers of the CLS recommend the following as "best practices" relative to ongoing training (Sailor et al., 1989, p. 98):

- Instructional staff have attended a regional or national professional conference within the past year.
- The program maintains a collaborative research, development, and/or training relationship with a college or university.
- The building principal or program supervisor observes personnel during instruction at least quarterly and provides staff with written feedback on performance at least annually.
- Instructional staff maintain collegial interactions with at least one colleague in another school whose students have similar needs.
- At least once each year, the program utilized an outside consultant with recognized expertise to provide technical assistance and/or training.
- The program philosophy emphasizes sharing its own innovative and effective efforts with other service providers in the region.
- The program philosophy supports the need for staff in-service training on a regular basis through provision of release time, etc.
- Staff meet formally and consult with one another at least once a month regarding specific educational issues.
- Teachers schedule time for training paraprofessionals to work with students on an ongoing basis, and monitor paraprofessional program implementation in non-classroom environments.

3. Staffing

Low student/teacher ratios and staff competence are extremely critical to the successful implementation of CLS (the definition of "low" in visited districts ranged from 17-25 students per class). A complicated staffing issue involves ensuring a staff/student ration that is low enough to allow intense intervention simultaneously across various instructional setting, in order to both address the priorities of each student's IEP and avoid violating the principle of natural proportion (Brown et al., 1983, as cited by Sailor et al., 1989) in any of the settings. Special education paraprofessionals will be able to provide a significant amount of support and are essential to successful implementation. Determination of the specific number of staff that will be needed will depend on the implementation plan developed and the types and number of resources determined "necessary" by the Site Resource Management Team.

The transition phase is perhaps best managed by a "transition specialist" who has an extensive training background and experience in special education (particularly with students who have severe multiple disabilities), vocational rehabilitation, and rehabilitation counseling. In the absence of transition specialists, the responsibilities for site management will probably continue to fall to high school special education teachers. While this additional responsibility creates an enormous overload for the teachers, the responsibilities involve more maintenance and less development after a starting period of approximately two years.

4. Facilities

All facilities in a district will need to be barrier-free, and modifications might be required to support the integration of students with severe disabilities. The settings should be normalized for students' chronological ages (e.g., decor/decorations, furniture, wall displays). Also, as several phases of the program occur in community settings, barrier-free locations will need to be identified.

5. Curriculum, Equipment, Materials, and Supplies

Supplies can become an issue with community-based instruction. Teachers will need to purchase bus tickets, pay for laundry in laundromats, and provide money for students to purchase materials in stores. Otherwise, materials and supplies would be no different than what is currently available to children as part of their IEPs and instructional programs.

Instructional methods, materials, and curriculum will all be affected as a result of CLS implementation. As mentioned previously, instructional strategies will need to be employed to facilitate the general classroom participation of students with severe disabilities. For example, cooperative learning and other peer instructional strategies provide opportunities to students with and without disabilities to interact, teach, and communicate with one another. Special materials may need to be developed to assist students with communication and acquisition of knowledge. Adaptations to the curriculum will also need to be made, and special and general education teachers will need to work closely together to make these adaptations and modifications, as well as to develop instructional strategies.

The development of appropriate educational programs for students with severe disabilities must reflect individualized objectives that lead to independence and participation in a variety of curriculum domains, including domestic, vocational, recreational, and community functioning (Sailor & Guess, 1983 as cited by Sailor et al., 1989). Each student should be able to participate as independently as possible in each of these domains, even if mastery of the total activity is not possible. Thus, all students, even those with multiple and profound disabilities, are enabled to be a part of community-based programs. Instructional procedures should enhance the students' dignity, focus upon the natural cues and consequences available in the environment, and be responsive to the social context in which instruction is occurring. Community instruction relies on heterogeneous grouping, and each group should include two to four students who have different skill levels and disability characteristics within the severely disabled category.

Individualized educational programs under the CLS program should have as a primary goal the development of skills that are necessary for normalized community living. As students move through elementary, middle, and high school grade levels, the curriculum should become increasingly community focused.

6. Classroom Arrangement

No particular classroom arrangement is recommended but classrooms must be organized, and their activities structured, to facilitate interactions among heterogeneously assigned students. Heterogeneous grouping is an essential feature of CLS, for it permits students to be grouped for educational purposes on the basis of their proximity to their chronological-age peers rather than their disability type. Also, therapy is integrated into classroom activities. Because general education teachers will be taking on increased responsibility for the education of students with severe disabilities, student/teacher ratios should be kept low (the definition of "low" in visited districts ranged from 17-25 students per class). At all grade levels, it is important to reduce the separation between the general and special education systems. General and special education teachers must coordinate their instructional programs, including frequently working side-by-side in the same classroom. Cooperative learning and peer mediated instructional strategies are encouraged, thus the classroom arrangement should be flexible to allow opportunities for small groups of students to work together.

The traditional concept of a "classroom" changes as students move through the five phases of CLS. At the early childhood and elementary grades, classroom arrangements can remain relatively unchanged as long as they are barrier free and conducive to cooperative learning and peer tutoring activities. As students move into middle and high school grades, the "classroom" expands from the school building to include the community. Development of a community intensive instructional program will require that a survey be conducted to determine availability and location of resources and to guide the development of an overall curriculum for the community intensive instructional program.

7. School and District Organization

Implementation of the CLS program changes the way schools and districts are organized. Rather than having separate special education schools, all students attend the school they would attend if they had no special needs. Transportation, student assignment, and deployment of special education and support personnel will need to be addressed. A reorganization plan describing school and district organizational changes must be developed.

IV. MONITORING IMPLEMENTATION OF CLS

A. Students, Classroom, and Building-Level Outcomes

There are no formal evaluation instruments provided. The educational progress of students with disabilities will be measured by their attainment of IEP goals and objectives. Thus, practitioners must be careful to develop IEPs that reflect all desired outcomes for students--academic, personal, social, and vocational.

In addition to mastery of IEP goals and objectives, interviewed parents and teachers indicated that they relied on observation of and personal judgment about student progress. Cited as observed improvement in student achievement was: increased motivation on the part of students with disabilities to do things for themselves; general education student recognition of individual differences; increased independence, vocabulary, patience, and conversation skills; and making appropriate use of free time.

B. Overall Program Implementation

An instrument to evaluate the degree to which the components of the CLS model are being implemented has been developed by the California State Department of Education Systems Change Project (PEERS). The instrument, Implementation Site Criteria, includes items validated as program quality indicators of services for students with severe disabilities (Meyer, Eichnige & Park-Lee, 1987).

V. EVIDENCE OF CLS EFFECTIVENESS

The intended outcomes of the CLS program for all students with disabilities, regardless of their individual characteristics and the severity of their disabilities, include employment, community integration, mobility, and social contacts. Though a comprehensive study to evaluate the extent to which the CLS program achieves these outcomes is still in the implementation stages, the following critical components and underlying theories of the CLS program are based on, or supported by, a number of research studies. Many of these studies are described and cited in The Comprehensive Local School (Sailor et al., 1989) and "Issues and Research in Special Education (Halvorsen & Sailor, 1990). Each component is briefly discussed below.

Social Development

- The development of social skills is thought to be at the core of the ability to work, enjoy friendships, maintain a positive self-image, and deal with stress and loneliness as an adult (p. 35). Multiple investigators have described positive changes in social competence for students with severe disabilities who have been placed in integrated settings. Among these findings are decreased rates of inappropriate behaviors, improved appearance, and acceptance by nondisabled peers (Halvorsen & Sailor, 1990). Additionally, peers have been found to play a critical role in the development of social skills (p. 39); and peer-mediated interventions have been found to be especially effective in enhancing skills of students with disabilities (p. 39).

Skill Acquisition and Generalization

- Individuals with severe disabilities can acquire a wide range of domestic, recreational, community-oriented, and vocational skills when these skills are taught in the natural environments in which they will be used (p. 123).

  Skill acquisition and generalization are enhanced when students with severe disabilities are integrated with nondisabled age mates. Halvorsen & Sailor (1990, p 148) have identified a growing body of evidence that students with severe disabilities are motivated to interact with their nondisabled age mates and these interactions are facilitative of the acquisition and generalization of a range of contextually relevant skills. For example, Halvorsen & Sailor (1990, p. 147) cite studies that have shown communication skills, play skills, and social skills can be generalized and maintained when taught within a framework of peer-to-peer relationships.

Transition and Employment

- Transition and community-intensive vocational instruction program positively impact on students with severe disabilities. The results of several studies reported by Sailor et al. (1989) suggest that the more school programs are integrated, the greater the likelihood that graduates will obtain supported and integrated employment, and the more that the school programs are segregated, the greater the likelihood that participants have sheltered placements during their postschool years (p. 181). One rationale for this outcome is that community and employer attitudes toward individuals with severe disabilities become increasingly positive and accepting as a result of involvement with integrated, community-intensive vocational instruction (Halvorsen & Sailor, p. 151). Positive postschool employment outcomes in terms of placement and wages have been found to result from integrated work experience programs during school years (Halvorsen & Sailor, 1990).

Studies of the CLS, or of full-inclusion approaches that are similar to some aspects of the CLS, continue to be conducted and will add to this research base. For example, there is some emerging evidence that students without disabilities in classrooms where CLS has been implemented achieve more than they did prior to integration although it is unknown if the findings will hold up over additional studies (Sailor, 1990). CRI researchers surmise two possible reasons for this preliminary finding. The first is that the addition of resources and support which are brought into the classroom to assist students with severe disabilities also benefit the nondisabled students. Another possible reason is that when students work in cooperative groups that include students with severe disabilities, they clamor to assist the student with severe disabilities, rehearsing what they are going to "teach." As a result, they appear to learn more themselves.

California Research Institute is implementing during the 1991-1992 project year a comprehensive study to evaluate the effects of two different models of integrated placement: the Comprehensive Local School (CLS) and the special day class (SDC). Evaluation measures will include variables related to program quality and student outcomes. Data will be gathered at eight randomly selected elementary-level SDC programs and eight randomly selected elementary-level CLS programs in California. The outcomes of this program evaluation study will have both practice and policy implications.

Also, Johnson City Central Schools (N.Y.), a district that has implemented a program similar to the mainstream phase of the CLS program in grades K-4, is in the first year of a three-year study of their K-2 program. Based on personal observations, staff in this district feel strongly that the mainstreamed approach is an effective strategy for meeting the needs of students with a full range of disabilities, especially those with severe disabilities. But, they have no hard evidence to support their convictions. As a result, the district is participating in a three-year study that is being conducted under a U.S. Department of Education grant by the State University of New York at Binghamton. Called the Collaborative Education Project, this study is addressing ways in which students with severe disabilities can be better served within regular education classrooms in grades K-2. Since the study is in its first year, it will be at least two years before preliminary findings are available and, unfortunately, these findings will be limited to grades K-2 (Palombaro, 1990). In addition, the district is working with consultants from Syracuse University to develop a plan for measuring and evaluating learner outcomes across all grade levels (Mamary, 1990).

VI. SOURCES OF ADDITIONAL INFORMATION

Contact the following for additional information about the Comprehensive Local School, including training, program implementation, and the names of sites that are implementing the CLS program and are willing to share their experiences:

Dr. Wayne Sailor
California Research Institute
612 Font
San Francisco, CA 94132

After August 1, 1992:
University of Kansas, UAP
Dole Hall (Rm. 1052)
Lawrence, KS 66044

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COALITION OF ESSENTIAL SCHOOLS

Developed by Ted Sizer

General Description: The Coalition of Essential Schools is a school restructuring enterprise that joins selected schools in a cooperative program designed to modify the priorities and simplify the structures of participating schools. The Coalition is an umbrella organization with a central staff housed in the Education Department of Brown University in Providence, Rhode Island. Coalition schools are guided by nine common principles:

(1) An essential school should focus on helping students to learn to use their minds well.
(2) The school's goals should be simple: that each student master a limited number of essential skills and areas of knowledge.
(3) The school's goals should apply to all students.
(4) Teaching and learning should be personalized to the maximum feasible extent.
(5) The governing metaphor of the school should be student-as-worker.
(6) The diploma should be awarded upon a successful final demonstration of mastery for graduation.
(7) The tone of the school should stress values of unanxious expectation, trust, and decency.
(8) The principal and teachers should perceive themselves as generalists first and specialists second.
(9) Ultimate administrative and budget targets should include total student loads per teacher of 80 or fewer pupils, substantial time for collective planning by teachers, competitive salaries for staff, and an ultimate per pupil cost not to exceed that at traditional schools by more than 10%.

Target Population: Originally designed to focus on secondary schools, the Coalition now includes elementary, middle/junior high, and senior high schools.

Implementation Considerations: Participating schools are selected by Coalition staff after prolonged planning and contact between the school and Coalition personnel. Four criteria are used in the selection process: diversity of geographic and student characteristics; agreement with the Common Principles; moral, professional, and financial support; and committed leaders and staff.

Program Effectiveness: Very little effectiveness research has been conducted. However, Essential schools do keep records of attendance rates, graduation rates, standardized test scores, and college acceptances. For the schools that have this data available improvements have been reported in all areas. The Coalition is beginning a longitudinal evaluation project called Taking Stock which is designed to provide information on effectiveness.

Costs: While there is no cost to schools for membership in the Coalition, the development of an Essential School may take 4 or 5 years with an estimated extra cost during this period of $50,000 per year. These funds are necessary to pay for substitute teachers, summer planning sessions, visits to other schools, and workshops or symposia.

COALITION OF ESSENTIAL SCHOOLS

Developed by Ted Sizer

I. INTRODUCTION

The Coalition of Essential Schools is a school restructuring enterprise that joins selected schools in a cooperative program designed to modify the priorities and simplify the structures of the participating schools (Coalition, 1988b). It is an outgrowth of A Study of High Schools, which was sponsored by the National Association of Secondary School Principals and the National Association of Independent Schools. The Coalition was established in 1984 as a partnership between Brown University and a diverse group of secondary schools throughout the nation. By January 1990, 106 elementary, middle, and secondary schools were involved in the effort; the cement of which is agreement to adhere to a set of nine "Common Principles" that provide the philosophical starting point for the process of change that occurs in participating schools.

The Coalition is a "model" only in the broad sense of the word. It is a model in the sense that it is a practical, well-organized, and clearly-defined effort at bringing about organizational change. It is not a model in the sense of providing a detailed framework or a replicable intervention program. The Coalition is the medium for creating change, with the content of that change prescribed only in broad terms: It is "a school reform effort that arises from a set of ideas that a school faculty must carefully fashion into appropriate practical form--rather than a describable practice that is to be implemented" (Sizer, 1989, p. 6). Thus, the manifestation of change is idiosyncratic to the individual schools.

Theodore Sizer, the founder and chairman of the Coalition, sums up the purpose of the Coalition when he writes (Sizer, 1989):

> The Coalition of Essential Schools promises no panacea, no quick model that can be put into place. It promises only an honest return to the basic questions about schooling, about growing up, about learning, and about teaching. It promises a hard, but ultimately liberating struggle for school folk, not only to forward their work in a setting that squares with the hunches of generations of successful teachers, but also to see youngsters--particularly those for whom traditional schools seem to have given up--perform in extraordinary ways. . . The model of the Coalition school is, thus, not a generalizable model at all.

> Rather, it is an approach that leads to an idiosyncratic model for each community, a unique representation of what is best for that setting and its people and which is consistent with some powerful, old-fashioned ideas about learning and teaching (p. 8).

A. Purpose and Goals of the Coalition

> Coalition schools believe that the overload of well-intentioned and often noble duties is itself a problem. What is essential must be pursued, and general intellectual education is for us the primary essential, the one that best enables all youngsters to observe sensitively, to become informed, to think clearly and with imagination, and to express themselves precisely and persuasively. Such skills are the heart of all good education--whether general, liberal, vocational, civic, or moral. And the focus on them must be primary; all else, whatever its merit, must be secondary (Sizer, 1986b, p. 40).

The Coalition calls for the focus of secondary education to be on helping students to learn to use their minds well and for the high school diploma to signify genuine competence, especially with regard to the fundamental skills of reading, writing, and mathematics. Both as a means toward this end and as an end in itself, the Coalition promotes the development of "Essential Schools" that are "places where decency prevails; where social and professional relationships are typified by tolerance, generosity and fairness" (Coalition, 1988b, p. 3).

The primary goal of the Coalition is to propagate this reform of secondary education based on the set of nine "Common Principles" outlined in Section D below. It is a "collective endeavor," based on "an ideology about schooling and learning that places 'personalization' high on the list of imperatives" (Coalition, 1988b, p. 3). Secondary goals identified by Sizer include (1) that Essential Schools will be the rule rather than the exception, and (2) that people will talk about adolescent learning in a different way.

By design, the goals of the Coalition are broadly defined. There is no standard program that schools simply adopt. Each participating school develops its own specific plan, consistent with Coalition principles but appropriate to its own setting (Sizer, 1989). The plan provides the details for changes in staffing and budget. It documents the planning and staff development necessary for the project, and it states the goals for the students, the teachers, the administrators, and the school as a whole. Sizer identifies three general goals for all essential schools:

(1) graduates will substantially out-perform graduates (of comparable social class) of traditional schools on any legitimate test;

(2) knowledgeable people will say that students at essential schools are more thoughtful (more decent, more likely to think before acting) than students at other schools;

(3) the program implemented through Coalition efforts will go on after the school is no longer involved in the Coalition.

Sizer views the Coalition as an experiment that must develop slowly. It is a "total" change, with attention to every aspect of the school, yet it proceeds "at a very deliberate pace" (Sizer, 1986b, p. 40). Sizer emphasizes process over product: Rather than a group of schools, the Coalition is a group of people who agree on ideas about adolescents and how adolescents learn. The Essential Schools are the reification of these ideas, but these ideas do not come from the Coalition organization in a top-down fashion. In fact, some schools join the Coalition not to get new ideas but to refine the ideas they are already employing. According to Sizer, the discourse is more important than the practical application of the discourse, but the discourse would not be possible without practical application.

An important relationship exists between the goals of the Coalition and the "Exhibition," which is the final exercise or set of exercises by which a student demonstrates mastery of the school's core subject matter. (See Common Principle 6 below.) A school must be able to clearly articulate its goals (what it considers essential) in order to be able to determine what a student should be able to do to receive a diploma (Sizer, 1989). This articulation of goals must include the level of skills, a determination of what all students should know and what areas should be left up to the individual student to decide, and a standard of performance. This articulation of goals must also include the means by which standards can be presented to all students in a way that challenges them and raises their own expectations without causing them to give up (Sizer, 1986b).

B. Contribution to Mainstreaming

The Coalition was not established with a focus on exceptional students. In fact, in some Essential Schools, students with disabilities are excluded from the Coalition program because of the stringent state and federal regulations applicable to these students. Much can be found, however, in the stated goals and purposes of the Coalition that suggests that the Coalition principles have great potential for serving the needs of students who have disabilities, especially those with mild disabilities.

One of the Common Principles is that "the school's goals should apply to all students, while the means to these goals will vary as those students themselves vary" (Coalition, 1988b). Sizer (1989) writes that the differences among students become clear when the teacher-student ratio drops (another principle of the Coalition). This lower ratio leads to a personalization that creates a "troubling new responsibility" as teachers become aware of the need to vary learning styles, provide differing motivations, and adjust to rapid or sluggish rates of learning. But because class loads are lighter and schedules are more flexible, teachers are better able to come to terms with differences and to offer slower learners the individualized attention they need (Chion-Kenney, 1987).

Wiggins (1989b) describes "the teacher's main role" as responding to student work "with personalized diagnoses and prescriptions" (p. 37). This is consistent with the change in the metaphor for the teacher's role from "teacher-as-deliverer-of-instructional-services to teacher-as-coach." With regard to atypical learners, the regular classroom teacher-as-coach, employing personalized diagnoses and prescriptions, would function in many ways like the traditional special education teacher.

C. Development and Foundation

The Coalition of Essential Schools emanated from A Study of High Schools, which was co-sponsored by the National Association of Secondary School Principals and the National Association of Independent Schools. A Study of High Schools began in 1979 as a descriptive inquiry into the nature of American secondary education (Sizer, 1986a). The study produced a trilogy of books. The first, Horace's Compromise (Sizer, 1984), described the routines of high school and discussed possible changes. The second, The Shopping Mall High School (Powell, Farrar, & Cohen, 1985), explained the accommodations schools make and how some students are served well and others poorly by these accommodations. The third, The Last Little Citadel (Hampel, 1986), provided a history of the development of the high school since 1940. The common theme of the three reports is compromise or what

Sizer calls "treaties, however genial or confrontational, that teachers and students and parents and administrators make to keep school functioning" (Sizer, 1986a, p. xii). Of the three reports, Horace's Compromise (Sizer, 1984) is the most prescriptive and it is the work that led directly to the founding of the Coalition.

In Horace's Compromise, Sizer (1984) relates problems with American high schools to the hierarchical bureaucracy that developed in the late nineteenth century. Middle class Americans perceived their way of life to be threatened by "newly populated cities, industrialization, and hordes of immigrants". In an attempt to maintain social order, they turned to the progressive reform of "scientific management" that prescribed rational, politics-free systems "driven by dispassionate professionals" (pp. 205-206). Schools were greatly affected by this reform, with the result being school organizations arranged in pyramidal tiers with governing boards and administrators at the top and classrooms at the base. These top-down bureaucracies, according to Sizer, have survived and are paralyzing American education by getting in the way of children's learning. There are at least six defects in this system of governance:

1) Special local conditions, particularly school-by-school differences, are overlooked;

2) Bureaucracy depends on the specific and the measurable because large units need simple ways of describing themselves;

3) Large administrative units depend on norms (the bases of predictability), so central tendency becomes the rigid expectation;

4) Centralized planning requires a high level of specialization, meaning most high school students have several teachers who know little about them;

5) Once regulations, collective bargaining agreements, and licensure get installed, change comes hard;

6) Hierarchical bureaucracy stifles initiative at its base, demoralizing many teachers. Sizer concludes that the learning exhibited in high school is strikingly limited, and, considering the energy, commitment, and quality of the people working in the schools, the structure of schools must be at fault.

Horace's Compromise (Sizer, 1984) closes with recommendations for changes in the structure of high schools that can be seen as the forerunners to the Coalition principles. The recommendations were as follows:

(1) Give room to teachers and students to take full advantage of the variety among them and to work and learn in their own ways, which requires substantial authority in each school;

2) Insist that students clearly exhibit mastery of their school work, which clarifies ends and forces both students and teachers to focus on the substance of schooling;

3) Get the incentives right for both students and teachers;

4) Focus the students' work on the use of their minds, which necessitates that schools not try to be comprehensive;

5) Personalize learning and instruction by keeping the structure simple and flexible.

According to Sizer, the Coalition is an attempt to "get off the ideological bandstand" and demonstrate what an effective secondary school would look like. The aforementioned recommendations and the nine Common Principles listed in the next section emerged from listening to a large number of teachers, students, administrators, and parents. Five schools grew to ten and, with the encouragement of funding from several philanthropic foundations, an expanding network of people and schools developed.

D. Key Principles Upon Which the Coalition is Based

The Coalition is grounded in a set of "Common Principles" that "provide the framework for our collective endeavor" and "reveal an ideology about schooling and learning that places 'personalization' high on the list of imperatives" (Coalition, 1988b, p. 3). Because the Coalition does not dictate a highly specific program for member schools to follow, these nine guiding principles are highly significant. While not an educational philosophy or a pedagogical creed, the principles provide the foundation upon which all the Coalition's work is built (Browne & Johnson, 1989). Elaboration on the principles is the task of each of the individual Essential Schools.

The Common Principles are listed below, largely in Sizer's words (Coalition, 1988b; Sizer, 1986b, 1989):

1. **An Essential School should focus on helping adolescents to learn to use their minds well.** Schools should not attempt to be "comprehensive" if such a claim is made at the expense of the school's central intellectual purpose.

2. **The school's goals should be simple: that each student master a limited number of essential skills and areas of knowledge.** The program's design should be shaped by the intellectual and imaginative powers and competencies that students need, rather than necessarily by "subjects" as conventionally defined. The aphorism "less is more" should dominate. Curricular decisions should be guided by the aim of thorough student mastery and achievement rather than by an effort merely to "cover content."

3. **The school's goals should apply to all students.** The means to these goals will vary as those students themselves vary. School practice should be tailor-made to meet the needs of every group or class of adolescents.

4. **Teaching and learning should be personalized to the maximum feasible extent.** Efforts should be directed toward a goal that no teacher have direct responsibility for more than 80 students. To capitalize on this personalization, decisions about the course of study, the use of students' and teachers' time, and the choice of teaching materials and specific instructional strategies must be unreservedly placed in the hands of the principal and staff.

5. **The governing practical metaphor of the school should be student-as-worker.** This is instead of the more familiar metaphor of teacher-as-deliverer-of-instructional-services. A prominent teaching strategy will be coaching, which will provoke students to learn how to learn and thus how to teach themselves.

6. **The diploma should be awarded upon a successful final demonstration of mastery for graduation--an "Exhibition."** This Exhibition by the student of his or her grasp of the central skills and knowledge of the school's program may be jointly administered by the faculty and by higher authorities. The diploma is awarded when earned, so the school's program proceeds with no strict age grading and with no system of credits collected by time spent in class. The emphasis is on the students' demonstration that they can do important things. Students of traditional high school age but not yet at appropriate levels of competence to enter secondary school studies should be provided intensive remedial work to help them meet these standards.

7. **The tone of the school should stress values of unanxious expectation ("I won't threaten you but I expect much of you"); trust (until abused); and decency (the values of fairness, generosity, and tolerance).** Incentive appropriate to the school's particular students and teachers should be emphasized, and parents should be treated as essential collaborators.

8. **The principal and teachers should perceive themselves as generalists first and specialists second.** That is, they should be teachers and scholars in general education first and experts in one particular discipline second. Staff should expect multiple obligations (teacher- counselor-manager), and demonstrate a sense of commitment to the entire school.

9. **Ultimate administrative and budget targets should include total student loads per teacher of 80 or fewer pupils, substantial time for collective planning by teachers, competitive salaries for staff, and an ultimate per pupil cost not to exceed that at traditional schools by more than 10 percent.** To accomplish this, administrative plans might include the phased reduction or elimination of some services now provided students in many traditional comprehensive secondary schools.

"If the Coalition has one key aphorism, it is less is more. If it has a renewed commitment, it is toward personalization, paying attention to the character, needs, and potential of each student. If it can reduce its sense of essential to one word, that word is thoughtfulness--clear, informed thinking and decent behavior" (Sizer, 1986b, p. 40).

II. COALITION DESCRIPTION

The Coalition of Essential Schools is an umbrella organization with a central staff housed in the Education Department of Brown University in Providence, Rhode Island. Participating schools are selected by the Coalition staff after prolonged planning and contact between the school and Coalition personnel. The following four criteria are used in the selection process (Coalition, 1988b):

a. **Diversity.** The Coalition includes schools that vary according to a number of features: urban, suburban and rural; public, independent and parochial; east, west, south and north; small and large; variety of student bodies and communities.

b. **Agreement with the Common Principles.** Essential Schools must "unequivocally" agree with the Common Principles, but they need not emphasize all of the principles equally.

c. **Moral, professional, and financial support.** For schools to participate in the Coalition, a firm and specific commitment is necessary from relevant governing authorities; and this commitment should be for at least a four-year period rather than one year at a time.

d. **Committed leaders and staffs.** The schools must be staffed mainly by people who are interested in the project, and staff who are skeptical about the project must be constructively so.

The Essential Schools are "autonomous colleagues in a federation" (Coalition, 1988b, p. 12). The Coalition itself and the participating schools are financially independent of one another. There is no transfer of authority from the schools to the Coalition staff, yet there are obligations on both sides. The chief obligation of the schools, aside from working toward the Common Principles, relates to the commitment from their governing authority (for at least a four-year period) giving the individual schools the authority and the funds required to support their involvement with the Coalition. The Coalition Prospectus (Coalition, 1988b) identifies eight specific financial obligations of the schools:

a. Planning time must be provided to staff sufficient to develop a school plan and to gain support from the community.

b. The principal should be freed from certain duties in order to focus more intensively on the project. Extra clerical support and discretionary funds should be available as support for the principal of an Essential School.

c. Extra funds must be available for the initial transition year and for ongoing planning and evaluation.

d. Travel funds must be provided for the principal to meet with Coalition staff and principals of other Essential Schools, for staff to visit other schools, and for staff to attend summer Coalition programs.

e. Essential Schools should be willing to bear the costs of hosting an on-site Coalition meeting.

f. Each school should have funds to hire consultants, of its own choosing, to pursue issues of local interest and to assist with evaluation of its program.

g. Funds should be available for the purchase of materials associated with the project.

h. Funds should be available for modest renovations necessary to accommodate the project.

The Coalition's central staff at Brown University is obligated to provide intellectual leadership and professional support to the participating schools (Coalition, 1988b). This includes obligations in four areas: on-site consultation, off-site coordination, outreach, and evaluation. On-site consultation involves visits to Essential Schools as requested by the schools. These visits might involve consultation or support with any aspect of the project including planning, training, fundraising, or public relations. Off-site coordination refers to "constructive provocation" by the central staff. This includes observing, analyzing, and writing to encourage on-going discussion among all members of the Coalition. It also includes arrangement for periodic meetings and organization of training sessions. Outreach involves the publication of internal and external documents, including books, studies, and a newsletter, for circulation to all interested parties. Evaluation refers to the arrangement for a general evaluation of the collective work of the Coalition.

As the number of member schools has grown, close conversation among the schools and between the schools and the Coalition staff has become increasingly difficult. An initiative, called "Re: Learning: From Schoolhouse to Statehouse," was developed in 1988 by the Coalition in conjunction with the Education Commission of the States (Coalition, 1989c; Sizer, 1988). This project is a joint effort with interested states that was designed to help schools find and maintain support by assuring state-level funding for schools interested in Coalition ideas and by creating administrative structures through which Coalition staff could maintain better contact with what goes on in the field. .

To become a Re:Learning state, a state must make a five-year commitment that includes assurance of financial support for fundamental redesign of approximately 10 secondary schools following the Coalition principles at an estimated cost of $50,000 per year per school. Though a portion of this money could be raised from businesses or other private sources, a substantial part of the funds must be public. Re:Learning states must also hire a coordinator to assist the schools and provide liaison with the Coalition. Six states have become Re:Learning states: Arkansas, Delaware, Illinois, New Mexico, Pennsylvania, and Rhode Island.

III. COALITION IMPLEMENTATION

A. The Coalition in Action

A high school in an eastern city is in its second year of association with the Coalition. Two teams of four teachers constitute the Essential School, with one team serving ninth graders and the other tenth graders. The teachers represent the four core subjects: mathematics, English, science, and social studies. The Essential School schedule comprises four 50-minute periods per day, with each core course meeting for a double period every other day. Each day Essential School students attend two of their Essential School courses (four periods) and attend electives for two periods in the regular school program. Teachers in the Essential School teach two two-period courses per day and have two planning periods per day--one for team planning and one for individual planning. The Essential School students participate in the regular school program for electives, guidance counseling, and discipline, though guidance is also provided through the Essential School program. The teacher-student ratio within the Essential School is 1:100.

In a large district in a southern state, four experimental schools (two elementary, one middle, and one high school) are Coalition members. As a matter of district policy, the schools are pursuing three of the Coalition's Common Principles: helping adolescents learn to use their minds well, student-as-worker, and personalization. At each of these schools the Coalition program is equated largely with cooperative learning. For example, an elementary school self-contained special education classroom teacher describes cooperative learning as the means of implementing the principle of student-as-worker because "cooperative learning sets the students free to learn on their own." A teacher in the middle school dropout prevention program also identifies student-as-worker as the main principle she is following and comments that her class is engaged frequently in cooperative learning toward this end. The principal at the middle school adds that at his school, in addition to student-as-worker and personalization, demonstration of mastery is being pursued. Additionally, the teachers do much team teaching and interdisciplinary instruction, though they were using these strategies in conjunction with cooperative learning before their involvement with the Coalition.

The principal at the experimental high school, where the Coalition program is least established of the four schools, emphasizes that the Coalition program is shifting the burden for learning off the teachers and on the students. He identifies three Coalition principles on which his school focuses: student-as-worker, personalization, and demonstration of mastery. Implementation of the Coalition program is not school-wide and is largely confined to a school-within-a-school that includes 14 of the school's 82 teachers. The whole school still operates with seven 45-minute periods, but consideration is being given to moving to three double periods and one single period.

B. Participant Roles

1. Students

The goal for students is that they complete high school with "an integrated vision of how to think within the culture, which implies a broad understanding, not just narrow or rote expertise" (Coalition, 1989a, p. 1). Toward this end, the most important of the Common Principles is the one that states that the governing metaphor of the school should be student-as-worker. Students are to learn how to learn and are not to view themselves (or be viewed) as passive receptors of knowledge that is presented by teachers. This change in the dominant metaphor (from teacher-as-deliverer-of-instructional-services) has implications that pervade the entire process of teaching and learning.

The work of students is described as action directed toward a large, tangible goal known from the start (Wiggins, 1989b). This work involves judgment as well as action by the students, rather than by teachers or textbook authors: "The idea of the student-as-worker implies that knowledge is constructed, not handed over in ready-made fashion but produced by the learner out of materials provided by the teacher and text" (p. 36). If students are to be engaged in higher-order thinking tasks, much more of the work of fact-and theory-building must be left to the student. Participatory learning is "authentic" work (Coalition, 1989a), and this is work with apparent value and clear goals that induces students to use their minds and that leads to more ideas and further challenges as it is pursued.

2. Teachers

For the student to become an active participant in the learning process, the teacher's role must change from that of intellectual authority and leader (Chion-Kenney, 1987). As the metaphor of student-as-worker is adopted, and the metaphor of teacher-as-deliverer-of-instructional-services is dropped, the new metaphor for teachers is teacher-as-coach. The role of the teacher naturally becomes that of coach as the curriculum becomes more question-centered (Coalition, 1989a). As with athletics or music, the role of the coach is to constantly make adjustments in the student's performance. A comparison is made to the way in which athletes or musicians learn the new rules and strategies they need (Cushman, 1989). This learning does not occur in a predetermined logical order, but occurs as the new skills are needed. Essential skills are then practiced repeatedly until they are habit. The teacher's role is to respond to student work with personalized diagnosis and prescription (Wiggins, 1989b). The goal for the teacher is to gradually become obsolete as students learn to solve problems for themselves.

The most significant specific impact on teachers in Essential Schools is that they must be generalists. The relevant common principle states that "teachers should perceive themselves as generalists first (teachers and scholars in general education) and specialist second (experts in but one particular discipline)" (Coalition, 1988b, p. 6). Furthermore, teachers must make a commitment to the entire school, to personalized learning, and to the role of coach (Coalition, 1989e). To make these commitments possible, an Essential School must attempt to create a teacher-student ratio of 1-80 (Sizer, 1989). The shift from specialist to generalist, as well as serving the purposes of increasing personalization and integrating the curriculum, also makes the reduced student-teacher ratio possible. To support the process of change that creates an Essential School, teachers attend summer Coalition-wide programs or enroll in university courses to shore up their knowledge of an out-of-field subject area.

As with all dimensions of the Coalition's work, there is no blueprint for change in the role of teachers (Coalition, 1989e). The specific changes in teachers' roles are developed (and continue to evolve) at each Essential School. In most schools, the move from specialist to generalist leads naturally to team planning and team teaching (Coalition, 1989e). Additionally, as teachers come to understand a new subject, they themselves serve as models of scholarship. They come to think of themselves as learners, not masters. Time is an important factor. Cooperative planning, team teaching, organizing an interdisciplinary curriculum, and teaching out of one's traditional subject area all require far more planning time than is traditionally available to teachers.

One of the Common Principles addresses the issue of the "tone" of the school: Teachers are largely responsible for creating a tone of "unanxious expectations, trust, and decency." Sizer writes that teachers must be "demanding and supportive." The teachers must play the role of "explainers, coaches, cajolers, and provokers" (Sizer, 1986b, p. 40). According to Sizer, this involves changes in both teaching style and in the attitudes of teachers and students. Importantly, a trusting relationship must exist between students and teachers so that students will understand that teachers care enough about them to demand much of them. According to Sizer (1986b), students "must know that such caring is itself a 'subject' of the curriculum, an attitude that permeates the entire community" (p. 40).

3. Administrations

The Coalition places much responsibility for development of an Essential School on the principal. Though the changes that the Coalition advances are described as empowering teachers, principals are viewed as the leaders in the change process (Sizer, 1989). The available evidence, according to the evaluation study by Grant et al. (1988), indicates that the Coalition program grew strong only in schools where the principals took a strong role as leaders and advocates of the Coalition program.

Principals and teachers together must have considerable freedom to determine the course of study and to decide how teachers' and students' time is scheduled. Like teachers, principals must come to think of themselves as generalists. In some schools, principals and other administrators carry an instructional load. This serves to make it easier to achieve the teacher- student ratio of 1-80. To allow principals to provide the extra effort required to develop an Essential School, the Coalition (1988b) suggests providing extra staff support to cover routine duties of the principal. The Coalition also recommends that principals have a discretionary account of funds to allow for quick action on needs related to the Essential School. Principals of Essential Schools also represent their schools at Coalition-wide meetings.

4. Parents/Community

According to Sizer (1989), a school reform effort like the Coalition's is an unfamiliar one to communities because it begins with a set of ideas that must be molded by the local school rather than a prescribed set of practices that must simply be implemented. This means that such an effort requires political protection which includes support from school board members, superintendents, and business and political leaders. In addition to resistance in the community because of the nature of the reform process, resistance is almost certain as hard choices are made to sacrifice traditional school practices in order to meet the goals and priorities of an Essential School. Cuts, even in extra-curricular areas, are potentially controversial.

C. Implementation Requirements

1. Planning

"The planning for a restructured program takes substantial, unremitting effort and emotional energy" (Sizer, 1989, p. 5). The development of an Essential School is a school redesign process that takes several years of overlapping planning and implementation. While adhering to the principles and standards common among the Essential Schools, each individual school must adapt plans to the particular needs of its students, teachers, and community (Coalition, 1988b). Twelve months of planning is recommended prior to the first day of classes in an Essential School (Coalition, 1989b). This is a costly and time-consuming process that involves planning by a significant core of staff during the summer and during the academic year. While there is no cost to schools for membership in the Coalition, the development of an Essential School may take four or five years with an estimated extra cost during this period of $50,000 per year (Coalition, 1988a). These funds are necessary to pay for substitute teachers, summer planning sessions, visits to other schools, and workshops or symposia.

The first step in planning an Essential School is arriving at a shared vision of the school's purpose and stating this vision in terms of goals for what students learn, how they learn it, and what kind of people they should strive to become (Coalition, 1989b). Many schools begin their planning year with staff discussions to define the school's educational mission and to decide how that mission fits with the Common Principles.

As noted previously, planning in an Essential School is an ongoing process that is never truly complete. The process involves overlapping of planning and implementation for a period of four or five years or more. The nature of the planning depends on the stage of development and the goals of the particular school, but, as with preimplementation planning, ongoing planning ideally involves all teachers and must occur both during the school year and over the summer.

2. Training

Preimplementation training is not an explicit part of the Coalition program, but staff development is considered part of the process for ongoing program development. As described previously, the Coalition Prospectus (Coalition, 1988b) identifies financial obligations of the schools that relate to training and staff development:

- Travel funds must be provided for the principal to meet with Coalition staff and principals of other Essential Schools, for staff to visit other schools, and for staff to attend summer Coalition programs.
- Essential Schools should be willing to bear the costs of hosting an on-site Coalition meeting.
- Each school should have funds to hire consultants, of its own choosing, to pursue issues of local interest and to assist with evaluation of its program.

Specific training and staff development needs develop out of the planning process and, therefore, are idiosyncratic to each school. However, the Coalition does offer general training for teachers and administrators from member schools or from districts and schools that are considering joining. The training programs, called forums, bring educators together from around the country and focus on issues or challenges that are common to all Essential Schools. For example, the Coalition's Fall Forum 1989, held in Newport, Rhode Island, included the following topics among its agenda: learn about Coalition of Essential

Schools, participate in hands-on workshops on the nine Common Principles, exchange ideas and share common concerns with others. The forums mainly use a peer training model, with people sharing ideas and working in groups toward solving common problems.

Ongoing staff development is critical to the success of an Essential School and must be planned over a substantial period of time. The specific areas of training must come from the teachers' own sense of their need (Sizer, 1989). Summer institutes are recommended as necessary to help teachers broaden and deepen their subject matter preparation. This preparation of people for new job roles (including teaching out-of-field, team teaching, counseling students, etc.) will be an ongoing process involving continuing training.

3. Staffing

Operation as an Essential School requires a number of significant changes in staffing patterns. These changes relate to the emphasis on a core curriculum and to the goal of a teacher-student ratio of 1-80, which have been described previously. For example, to achieve the 1-80 ratio, guidance counselors, librarians, and assistant principals may be asked to take on a limited teaching load. Both to support the interdisciplinary core curriculum and to achieve the 1-80 ratio, team teaching is an important Coalition strategy that will have a significant impact on staffing patterns. With changes in the core curriculum, some non-essential subject areas may be dropped, leading to the elimination of the need for certain teaching specialists. Additionally, clerical support to cover routine duties is recommended to free the principal to focus on policy and program issues related to the Coalition program (Coalition, 1988b). The use of consultants, chosen by the local school, is also necessary to support the development and evaluation of the Coalition program.

4. Facilities

No special facilities are needed for involvement in the Coalition program.

5. Curriculum, Equipment, Materials, and Supplies

Sizer (1989) describes the Essential Schools movement as, first and foremost, a movement in pedagogy. Everything about the teacher-student- subject relationship is affected. The key for Sizer is to correct the relationship between student and teacher by replacing the metaphor of teacher-as-deliverer-of-instructional-services with that of student-as- worker/teacher-as-coach. When this is done, "subject matter and all else eventually will fall into place" (Sizer, 1989, p. 6). Because of the decentralized nature of the Coalition, the specific changes in instruction and curriculum will vary from site to site. The Coalition staff does, however, provide some insight into the direction these changes are likely to take, and the changes they foresee are profound ones.

The alternative to the traditional high school curriculum, as described by former Coalition researcher Grant Wiggins, is to "organize courses not around 'answers' but around questions and problems to which 'content' represents answers" (Coalition, 1989a, p. 2). These are known as "essential questions." The point is for all students to be engaged in higher order thinking: analyzing, synthesizing, and evaluating evidence they gather themselves. Students learn to use textbooks as an intellectual resource for research rather than as a program to be rigidly followed in sequence (Cushman, 1989). The goal of the curriculum for an Essential School, therefore, is to get all students to use their minds well.

To fully realize this goal, an Essential School must "redesign the entire curriculum around thorough coverage of fewer areas, rather than offering an array of courses aimed to attract students for whom vastly different expectations are held" (Coalition, 1989a, p. 1). This is a radical change in the face of traditional secondary education where "for a century high schools have asked students to memorize facts and answers in carefully distinct fields of study, and teachers have been under pressure to design courses that cover a specific chronological sequence of material" (Coalition, 1989a, p. 1). A significant curriculum issue becomes that of electives. As an Essential School moves to arrange its schedule to enhance the core curriculum, scheduling of electives becomes difficult. Consistent with the principle aphorism that "less is more," electives become expendable. Course content that would traditionally be covered in electives (e.g., music and art) is incorporated into interdisciplinary core courses.

Curriculum issues cannot be addressed in any depth without modifications in assessment. Conventional curricula are closely tied to test-based criteria of success, with the curriculum designed to meet the standards that the tests measure (Coalition, 1989a).

This means that students can complete high school with serious weaknesses in their ability to think critically or creatively and without ever having been required to demonstrate that they can use their minds well. To counter this failing, the Coalition advocates a final "Exhibition of Mastery" as the criterion for graduation. This requires schools to develop a vision of success that clearly articulates what students should know and be able to do by the time they graduate. That vision of success then drives the development of the curriculum. Curriculum change must begin with the essential question: What do we really want as an outcome?

No special equipment is needed for involvement in the Coalition program. The need for special materials or supplies would vary from school to school depending on the direction of the restructuring of the curriculum. It would be expected, for example, that most Essential Schools would have a reduced need for textbooks and an increased need for materials that would support independent exploration of topics.

6. Classroom Arrangement

No special classroom arrangement is necessary for implementation of the Coalition program.

7. School and District Organization

The changes in teaching advanced by the Coalition necessarily lead to changes in the traditional high school schedule (Coalition, 1989d). The most common change is the introduction of flexibility that allows teachers to work more closely with students and to deal with subjects in greater depth. Longer class periods are important to encourage students to use critical thinking skills, to develop projects in the library or community, or to work in small groups. Changes in scheduling, which allow teachers to see the same group of students for more than one period a day, are also necessary to achieve the 1-80 teacher-student ratio. These scheduling changes may be the most difficult of all changes to implement. In some instances, high schools have limited the impact of change by creating a school-within-a-school, with students attending core courses in blocks while moving into the regular program for electives. While this was initially viewed by the Coalition as a short-term compromise until the staff was ready to reschedule the entire school, the Coalition no longer recommends the creation of a school-within-a- school and schools now joining the Coalition must agree to gradual implementation on a school-wide basis.

The Coalition recommends incremental changes, some of which will require long-range planning. To accomplish the task effectively, decision-making must be in the hands of the school staff, which means some degree of site-based management. Additionally, the job descriptions of the majority of people in the school will change. For example, counselors, librarians, and assistant principals may be asked to carry a limited teaching load, and all instructional personnel will need to broaden their subject knowledge in order to function effectively as generalists. In order to assist schools in reorganizing to meet the Common Principles, and in particular to achieve a teacher-student ratio of 1-80, the Coalition has developed examples or models (referred to as Mythos) of how a school's periods and faculty can be scheduled (Lusi & Watkins, 1989; McCarthy, Follett, & Sizer, unpub.). These models demonstrate how changes may occur in the allocation of three resources: money, time, and personnel. Allocations of money, time, and personnel are an expression of a school's priorities, so changes in these allocations must develop as the result of changes in priorities, which may require an extended process of discussion and compromise.

For states that have become Re: Learning states (see Description of Coalition Components and Procedures), a reformulation of policy has occurred at the state level. This reformulation affects districts and schools in many ways. For example, the five-year state-level commitment assures the districts of long-term financial support; the requirement for the participation of 10 schools within the state means that there will be a within-state cohort of Essential Schools that can provide mutual support; and the state-level coordinator position should provide technical support as well as serve as a liaison between individual schools, local districts, and the state.

IV. MONITORING IMPLEMENTATION OF THE COALITION OF ESSENTIAL SCHOOLS

A. Students, Classroom, and Building-Level Outcomes

Using irony to distinguish between the type of outcome measures espoused by the Coalition and traditional outcome measures, Coalition research scholar Grant Wiggins (1988) advocates "teaching to the test." The twist is that "the test" is not a norm-referenced instrument, which is neither intellectually challenging nor produces useful results. In fact, mandated standardized tests, with their adherence to a regurgitation of facts, are seen to limit a school's ability to follow Coalition principles. "The test" must be such that practicing for it as well as taking it enhances, rather than impedes, a student's education. Truly authentic tests, according to Wiggins (1989a), are "performances," which do the following:

- Ask the student to engage in authentic activities and inquiries;
- Require rehearsals, "scrimmages," and diagnosed practice;
- Require usable knowledge of the goal of the course;
- Require knowledge of the criteria of "good" performance;
- Require knowledge of the habits and skills necessary for self-disciplined and self-directed work.

Furthermore, authentic performances tend to be public, require some degree of collaboration, and are clearly coordinated with all prior activity. These performances are designed primarily for their intellectual challenge, rather than for ease of grading, and luck is factored out as much as possible. They involve activities that are intrinsically educational and interesting. The goal is to strike a constantly examined balance, that honors achievement, native skill, and prior good training. The criteria for success should appear to students as objective, inherent in the activities, and desirable (Wiggins, 1989a).

Consistent with the emphasis on authentic performances, the final "test," upon which graduation is based, is criterion-referenced and is an "Exhibition of Mastery" rather than a paper and pencil exercise (Sizer, 1984). Essential Schools develop a set of performance standards that must be met for the awarding of a diploma, and students graduate when they have demonstrated mastery consistent with the school's standards. As described in the sixth principle, Exhibitions demonstrate the students' grasp of the central skills and knowledge of the school's program and may be jointly administered by the faculty and by higher authorities. The emphasis is on the students' demonstration that they know and can do important things. Though this may involve a display of substantive learning, qualities of mind and spirit are considered the most important outcomes and, as a result of going through an Essential School program, students are expected to be decent human beings who are very involved citizens (Browne & Johnson, 1989).

In theory, Exhibitions are the preeminent form of student outcome measure, but in practice final Exhibitions have not become commonplace in Essential Schools and outcome assessment remains a problematic area for the Coalition (Grant, Anton, Cusick, Kessen, Miller, & Newmann, 1988). Sizer (1989) recognizes that nothing is more difficult for a faculty than addressing what a student should be able to do to graduate. He sees addressing this issue, however, as potentially liberating because, by becoming clear about the qualities that students must ultimately display, a faculty can derive an educational plan that gives priority to helping students achieve appropriate goals. Ultimately, "such 'exhibitions' can be the basis for sensible accountability, a measuring stick of quality that transcends the trivialization now reflected by our familiar quick-and-dirty, low-cost, paper-and-pencil tests" (Sizer, 1989, p. 7).

B. Overall Program Implementation

The nature of the Coalition of Essential Schools program makes it difficult, if not impossible, for there to be a uniform standard for schools to monitor their implementation of the program. The Coalition is an ideology based on the nine Common Principles. It is not a standard program that can be adopted. Each school must develop its own plan and goals for implementation of the principles. Therefore, schools will need to monitor their implementation against their own plan with support and consultation from the Coalition staff.

V. EVIDENCE OF COALITION EFFECTIVENESS

The Coalition has struggled with finding satisfactory methods to document or measure its effectiveness. While conventional measures such as standardized tests have some value, many goals of the Coalition are more qualitative in nature and do not lend themselves to quantifiable measures. In addition, the variations among Essential Schools make comparisons across schools difficult.

Though results are limited and studies are not completed, a number of evaluation efforts have been undertaken by the Coalition. Four distinct efforts can be identified: A four-year ethnographic study by two anthropologists at Brown University; an evaluation conducted in 1987-88 by members of the Coalition Advisory Committee; the collection of performance data (i.e., attendance rates, drop out rates, etc.) from schools in the Coalition; and a major research project, entitled "Taking Stock," which will gather a broad range of information on how Essential School students perform and will publish an annual report.

The ethnographic study is nonevaluative. It focuses primarily on six Essential Schools but includes an attitudinal survey of students at 11 of the schools. The survey examines a variety of issues including school climate, student-teacher and student-student relations, assessment, and popularity. Preliminary findings indicate that some parts of the Coalition program are taking root: student-as-worker, teacher-as-coach, and personalization. Furthermore, resocialization and value reorientation are occurring, which is significantly influencing pedagogy and curriculum. Additionally, experimentation is occurring with Exhibitions resulting in a variety of products including recitation of prepared papers, debates, unscripted mock trials, traditional lab experiments, and oral history projects.

The evaluation conducted by the Coalition Advisory Committee began in the spring of 1987 when a subcommittee of the Coalition Advisory Committee was formed at the request of Coalition staff. This subcommittee, which reported its findings in September 1988 (Grant et al.), distributed a questionnaire to all 52 schools in the Coalition at the time, visited nine of the original Essential Schools, attended a two-day workshop for teachers and principals in Essential Schools, and examined documents produced by the schools and the Coalition staff. The study had three objectives:

a. To assess the quality of the documentation and evaluation efforts in place.

b. To assess the progress of the Coalition reform effort at the school and classroom levels.

c. To comment on the development of the Coalition per se.

Thirty-one schools returned the questionnaire. The findings reported are mostly descriptive (Grant et al., 1988). For example, 19 of the schools have less than 10 percent minority populations, three have between 10 and 20 percent, six between 20 and 50 percent, and three greater than 50 percent. Commitment to or attraction towards the Common Principles was the major reason schools joined the Coalition, but the personal qualities of Ted Sizer represented the critical factor for many schools. School principals (or superintendents) usually initiated action to join the Coalition, and in only one case did teachers themselves start the program. Lack of financial support, outside interference, negative publicity, internal opposition, and political obstacles were named as hindrances to achieving real change.

Seventeen of the 31 schools described student-as-worker as the central focus of their Coalition program, while ten schools selected "helping adolescents to use their minds well" as the central focus. The evaluators reported that Exhibitions were clearly a problem area. Only two schools indicated that Exhibitions were a central focus. Overall, the evaluators found great variance among the schools in interpretation of the meaning of the Common Principles and in depth of application.

The site visits to nine charter schools supported the findings of the questionnaire (Grant et al., 1988). Overall, the visits confirmed that the Coalition's greatest impact was in three areas: (a) changing the discourse within schools, (b) transforming the relationships between teachers and students, and (c) advancing the pedagogy of student-as-worker. The most striking finding from the visits was the high level of personalization. Teachers knew their students well and relationships were informal and warm. Not all findings, however, were positive. For example, the evaluators report that they saw "lackluster and boring classes passing under the banner of the new ideology" (Grant et al., 1988, p. 21). Additionally, most schools were just beginning the task of interdisciplinary planning. Course content had not changed much in most schools. Exhibitions and new methods of evaluation were almost nonexistent. A final problem area identified was the lack of hard data or other documentation at individual schools that would be useful for program evaluation. With regard to the impact of the Coalition staff and the relationships among schools, the evaluators reported strong positive testimony, but also a feeling that the Coalition staff was spread too thin and the level of support was inadequate.

The evaluators concluded that the commitment of some schools to the Coalition was minimal and that approximately a third of the schools in the Coalition are only nominal members. Twenty-one of the 52 schools did not return the questionnaire despite extensive follow-up. The evaluators estimated that in approximately a third of the 52 schools only a minority of teachers have identified with the Coalition. The evaluators conclude that "the support base for the long-term continuation of the Coalition program is thin or only tenuously held in perhaps two-thirds of the schools" (Grant et al., 1988, p. 28).

The evaluators made five recommendations:

a. The Coalition staff focus its efforts on helping a small number of schools put the full Coalition program in place, thus creating demonstration schools.

b. Leadership be provided by the Coalition in the development of Exhibitions and the less-is-more principle of curriculum revision.

c. The Coalition seek to bring more typical urban public schools into its network.

d. A long-term evaluation plan be developed and put in place.

e. The Coalition staff should develop and publish clear criteria for demissioning nonparticipating schools.

All Coalition schools are expected to keep records of attendance rates, graduation rates, standardized test scores, and college acceptances. These figures provide intra-school comparisons (when the Essential school is a school-within-a-school) and pre- and post comparisons for the school before and after becoming an Essential school. Cushman (1991) reported on some of these data for the 1990-1991 school years. Not all schools have kept adequate records; however, in those schools where comparative data are available there have been improvements reported in all areas. The Essential participating group had lower drop out rates, higher attendance rates, higher academic achievement, fewer discipline referrals, and more students going on to higher education. Cushman (1991) reported a sampling of these findings from nine schools.

Most of the Coalition's efforts at evaluation are focused in the Taking Stock project. Sizer and Tom Wilson, who has seen Taking Stock through its initial stages, described the project as having three parts (personal communication, January, 3, 1990): (a) the systematic collection of numerical data from all Essential Schools, to be called Common Measures; (b) case studies, including the ethnographic studies already in progress; and (c) a longitudinal study of graduates to determine the long-term impact of the Coalition program. A pilot study for a substantial research effort within this project has just been completed recently (Cushman, 1991). The results of the pilot are to be used in developing the Common Measures that all Essential Schools will collect and in developing uniform data collection procedures for all schools to use. As a part of this pilot study, a survey was conducted with teachers and students, both those involved with the Essential Schools (ES) program as well as those uninvolved in the ES program. Forty-six of the 71 contacted schools responded. A summary of the results from the surveys is reported by Cushman (1991). Higher levels of involvement in the program were associated with heavier workloads for teachers but reportedly greater enjoyment in teaching. Higher involvement levels did appear to reduce the number of students for which teachers were responsible. While ES students were more likely to report plans to go to college, these students were also more likely to have reported their fathers completed high school, which suggests a difference in the populations independent of ES status.

The longitudinal study will be conducted in schools where key Coalition principles are well established. This will be a nine-year study, following 50 to 75 Essential School students through high school and the five years following graduation. This type of longitudinal study while difficult to conduct has the potential to yield information on the long term impact of the Coalition of Essential Schools.

VI. SOURCES OF ADDITIONAL INFORMATION

Contact the following for additional information about the Coalition of Essential Schools, including training and the names of sites that are currently implementing this program and are willing to share their experiences:

Coalition of Essential Schools
P.O. Box 1938
Brown University
Providence, Rhode Island 02912

or

The Education Commission of the States
1860 Lincoln Street, Suite 300
Denver, Colorado 80295

VII. REFERENCES

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Appendix B

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APPENDIX C

FOCUSED FIELD REVIEWS

The primary purpose of the review process was to obtain direction and guidance from representatives of our targeted user group (stakeholders) that would assist us in transforming the information we gathered throughout the course of this project into a usable format. A focus group strategy (a technique most frequently used in marketing research) was selected for the review process because of its utility in determining product appeal and prediction of future sales. Thus, this technique was appropriate for us in determining the comprehensibility, utility, and marketability of the final product. Recommendations generated during the focus groups guided our development and revision of the final product. Following is a summary report of how we used the focus group technique within the project.

1. Schedule of Focus Groups

A total of nine focus groups were conducted. These groups were convened as follows:

June 21, 1990	Arlington, Virginia
January 22, 1991	Orlando, Florida
February 28, 1991	Orange County, Florida
March 12, 1991	New Orleans, Louisiana
October 18, 1991	Richardson, Texas
October 21, 1991	Kansas City, Missouri
October 28, 1991	Sumner, Washington
October 30, 1991	Monticello, Minnesota
January 5-7, 1992	Washington, D.C.

Our purpose in locating the focus groups in various geographic areas of the country was to assure that we accounted for any regional perspectives that might influence the consideration and selection of educational programs. Although the majority of focus groups were held in large urban areas, participants represented urban, suburban, and rural settings.

2. Selection of Participants

Selection of focus group participants varied from site to site. Our goal in selecting participants was to include representatives from each of the targeted stakeholder groups. We also were interested in assuring that selected participants provided representation of various professional associations (e.g., the National Associations of Elementary and Secondary School Principals, the Council of Administrators of Special Education) in order to familiarize the associations with our project and final product. Finally, we selected participants to represent a variety of school and district settings--large, medium, small; urban, suburban, rural; ethnically diverse and ethnically homogeneous student populations; densely and sparsely populated areas. We were able to meet our goals for representation and include participants from the following stakeholder groups: general education teachers; special education teachers; principals; assistant principals; district coordinators, supervisors, and directors of special education; assistant superintendents; and directors of general education programs.

Participants were identified in one of four ways. Individuals for the first focus group were selected by contacting the executive directors of the (a) Council for Exceptional Children, (b) National Association of Elementary School Principals, (c) National Association of Secondary School Principals, and (d) American Association of School Administrators and inviting each to identify a person or persons from their constituencies. For six of the nine focus groups a site coordinator, the local director of special education programs, was asked to assist with the identification of participants. The site coordinators were informed of our preferences for including participants from each of the targeted stakeholder groups. One focus group was held in conjunction with a conference of the Council of Administrators of Special Education and participants signed up for the focus group as part of the conference. Participants for the final focus group were selected in conjunction with staff of the Office of Special Education programs and represented stakeholders from eight states.

3. Focus Group Format

Each focus group ranged in size from five to ten participants. A one-day format was followed for each focus group and consisted of (a) group discussion in response to questions about the overall package, (b) group discussion in response to questions about individual package components, and (c) independent reviews of package components. Although this same format was followed for each group the specific content covered in each group varied.

From the first two focus groups we were interested in obtaining information that would help us shape our final product. Focused discussions were conducted to find out from participants: how and why they make decisions about changing a program or practice; where they seek information they need in order to make "good" decisions; what kinds of information they need and want to know about a program to critically evaluate it; and their preferences for product packaging and access. Additionally, participants reviewed three to four individual program summaries providing written responses to questions about them, editorial suggestions within the summary text, and verbal feedback during a focused group discussion following the independent reviews. Questions about the individual summaries addressed the quantity of information, summary organization, readability, and comprehensibility of each summary.

The primary content focus for the remaining seven focus groups was the program summaries and the introductory sections of the final product. Each focus group reviewed a different set of three to four program summaries to assure that each of the 16 program summaries was reviewed by at least one focus group. Within each group, participants independently reviewed the written materials and, during group discussion, provided: direction and guidance on the development of and format for the decision-making framework; confirmation of our schema for classifying educational programs; direction for refinement of the individual program summaries; and support for the overall packaging (three-ring binder) of the final product.

4. Findings and Recommendations

Use of the focus group technique as a strategy for reviewing the components of the final product at various stages of development proved invaluable to our efforts on this project. The recommendations and suggestions provided by the focus group participants gave us confidence in the product we have produced. Following is a summary of the focus group findings and recommendations by topic area.

Decision-Making

- The decision to make a programatic change is most often a reactive response to: program evaluation outcomes, concerns/pressures from parent and advocacy groups, mandates from "above." Participants indicated that occasionally they are proactive in initiating change as a result of a self-identified need or as a result of ideas generated from conferences and interactions with other professionals.

- A decision to use a particular program will be influenced by: availability of specific information about the program, "fit" with the political climate of the school or setting, and perceived value of the program.

Accessing Information

- Because time is a major concern for school practitioners, (i.e., finding enough of it) they are very interested in resources that have information about a variety of programs into one place. The product we developed is appealing to them because it contains information about 16 different educational programs.

Product Design

- Our initial project plans to create several resource guides targeted at different user groups changed after focus group participants indicated a preference for one package that contained information of interest to each of the targeted user groups. Focus group participants indicated that this feature would make the product easier to use in a variety of situations, e.g., school- or district-based study group comprised of persons holding a variety of positions within the school or district would all be able to work from the same base of information. Additionally, we received definitive direction from participants to design a package that required no training to use. That is, they indicated a preference for a product that could be easily and independently accessed, followed, and used.

- There was significant support for producing a package that could be contained in a three-ring binder. Participants indicated that this format was desirable, especially for the type of product we have developed, because it will permit users to remove individual summaries and other package components as needed. They were especially interested in being able to copy individual summaries to share with others as part of the program review and consideration process.

- In response to the query "what types of program information do you want and need to be able to make a decision about using a particular program" participants identified the following:

  A description of the characteristics of the population for whom the program is designed;

  Cost details associated with selection and implementation (i.e., personnel commitment; time required for day-to-day implementation; purchase of required materials/equipment; training; facility modifications; transportation);

  An example of how the program is implemented;

  Evidence of effectiveness;

  A brief program description that provides enough information to determine how well the program will "fit" with existing programs and policies;

  A format that is clear and concise;

  A description of staff roles;

  A description of how the program can be adapted for different settings and populations;

  Information about how to contact a site that is already implementing the program or how to access a videotape that shows the program "in action; and

  Planning information on how to get started with the program, e.g., informing parents, scheduling initial training.

Focus Group Process

- The combination of independent review of written products and group discussion (as opposed to only one or the other) was essential to the review process. Comments shared during the group discussions were generally more critical and specific than comments shared in written form.

Appendix D

SITE VISITS

In order to gather in-depth information about the implementation requirements and practices of the 16 representative programs, visits were made to sites recommended by program developers as schools and/or districts that would provide us with good information about program implementation. The visits were intended to: (a) extend our understanding about program implementation obtained from the literature reviews and developer interviews; (b) provide insight into each program's potential for transportability and replication; and (c) provide insight into the impetus for and process of program selection by a school or district. This latter purpose provided us with information about the decision-making process that is followed in selecting a program for implementation.

I. SITE VISIT PROTOCOL

We used a modified case study approach when conducting the site visits. A protocol was developed to provide structure and consistency to the collection of data across sites. The protocol contained a series of questions organized by topical area (e.g., the role of the teacher) whose answers would provide the desired information about program selection and implementation. Additionally, the protocol contained directions to the site visitor regarding observations to be made and documentation to gather.

The protocol was organized into two parts. Part 1 directed the site visitor to gather contextual information about the district in which the site visit took place, e.g., student population, urbanicity, number of schools, administrative organization, and size and extent of the special education program. Following the first site visit we determined that it would be more efficient to allow districts time to gather the desired contextual information prior to our actual visit. We then organized this section of the protocol into a questionnaire and mailed it to the sites in advance of our visit.

Part 2 of the protocol contained three sections that guided the site visitors in gathering data on site. The first section focused on program selection, i.e., how and why the program was selected, what the district/school was trying to accomplish as a result of program implementation, and how they learned about the program. The focus of the second section was on program implementation including administrative, organizational, and instructional aspects of the program. Questions related to implications for use of the program with students who have disabilities were also included in this section.

Finally, a third section posed questions that gave interviewees an opportunity to discuss future plans for program implementation and to provide recommendations for others who may be interested in implementing the program.

The site visit protocol was revised prior to our conduct of visits during year two of the project. Revisions were made to form a better fit between its format and that of the program summaries. Specifically, items were reorganized into five sections. Section 1 directed site visitors to collect descriptive information about the site and information about the site's selection of the program; Section 2 focused on the site's purpose and goals in selecting the program, the program's components and procedures being used by the site, the relationship between general and special education teachers in implementing the program, describing what the program looked like when it was implemented, and data collection activities employed by the site to measure the program's effectiveness; Section 3 guided data collection about the roles of students, teachers, administrators, parents, and community representatives; Section 4 focused on implementation issues such as planning, training, staffing, and evaluation; and Section 5 contained general wrap-up questions for closing the site visit.

II. SITE SELECTION

Each program's developer was asked to recommend two or three sites where we could observe "good" implementations of their program. We specifically requested that the recommended sites be located away from the developer. Our preference was for sites located in a different state from the developer so as to be able to examine the transportability of the program. Developers also provided the names of contact persons for each recommended site.

The recommended sites were then screened via telephone interviews to determine the extent of program implementation, the size and organization of schools in the district, the involvement of students with disabilities in program implementation, the length of time the district had used the program, and the willingness of the district to participate in our study. Our primary criteria for site selection were: (a) the program was in place and had been operating in the site for more than one year, (b) students with disabilities were participating in the program, (c) the program was being used with more than one grade level, and (d) the site was willing to participate in our study. This last criterion was very important due to the need for an on-site coordinator to schedule observations and interviews for our visit.

III. SCHEDULING

Site visits were conducted between April 1989, and May 1991. To the extent possible, we conducted more than one visit per program so as to be able to describe how programs were implemented in different types of settings. For example, we wanted to highlight similarities and differences, if any, of implementing a program in a rural, mostly white, farm community and in an inner-city setting with an ethnically mixed student population.

Scheduling involved the establishment of the site visit dates and the scheduling of each day of the visit. Each member of the project team assumed responsibility for coordinating at least one site visit. Project staff conducted the telephone site screening, arranged for the visit, and served as site visit leader (when more than one person conducted a visit) on site. Site visits consisted of observations in schools and interviews with teachers, school administrators, and district office staff. In some instances, parents and students were also interviewed.

IV. SITE VISIT REPORTS

Data gathered on site were summarized in individual site reports. The reports contained the following information:

> Section I. General Description. In this section the school district and community were described. Background information, school statistics, and administrative organization were included.
>
> Section II. Program Selection. The reasons for program selection were described. Influencing variables were identified when possible.
>
> Section III. Program Implementation. Under this section the administrative, organizational, and instructional aspects of the program's implementation were discussed. The administrative aspects included a description of the staffing, budgeting, and evaluative aspects of the program, as well as a discussion of legal issues relative to program implementation, if any, and the program's perceived impact. Facility needs, scheduling, and instructional staffing were included in the discussion of organizational aspects. Finally, the roles of the teacher and student, student evaluation, and the curriculum were described under instructional aspects.
>
> Section IV. The Program and the Special Education Program. In this section the relationship between the program and the special education program was described, including the participation of students with special needs in the program and the involvement of the special education staff in implementing the program.
>
> Section V. General Recommendations Regarding the Use of the Program. Recommendations made by site visit interviewees regarding program implementation were included here.

V. USE OF SITE DATA

The primary purpose for the site visits was to gather implementation data to enhance and expand the program summaries. Specifically, we wanted to describe the "real world" experiences of school practitioners who had used each program. Site data were incorporated in the program summaries.